The Relationship Between Principal Tenure, Stability, and Experience and Student Achievement in Georgia Elementary Schools

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ABSTRACT

This study sought to determine if the tenure, stability, experience, principal gender, or race or ethnicity of elementary school principals could predict student achievement in Georgia elementary schools. Student achievement was determined by using the percentage of Georgia elementary third and fifth grade students who met or exceeded standards on the Georgia CRCT for the 2008 - 2009 school year in the following subjects: reading, English/language arts, mathematics, science, social studies, and the Grade 5 Writing Assessment. The study's primary population consisted of prekindergarten through fifth grade Georgia elementary schools (N = 1,023). An additional analysis was conducted to determine if there was a significant difference in principal tenure, principal stability, and principal experience by school configuration. Descriptive statistics, multiple regression, Pearson's correlation, one-way analysis of variance (ANOVA), and the Mann-Whitney U Test were used to complete the data analysis.

Findings of the study revealed variables related to school principals did not make significant contributions in 12 of the 13 regression models. The model in which an exception was found was in fifth grade mathematics. Variables related to students did make significant contributions to each regression model. The percentage of economically disadvantaged students made a significant contribution to all thirteen models. The percentage of minority students made a significant contribution to twelve of the thirteen regression models with Grade 5 Writing ~~Assesment~~Assessment being the only exception. There was no significant difference found between the combined levels of principal experience and levels of principal stability and the 13 student achievement variables.

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Additionally, this study found statistically significant differences between the combined levels of principal experience and level of principal tenure and various student achievement variables. Mann-Whitney U Test was conducted to determine if there was a significant difference between principal experience, principal stability, and principal tenure by school configuration. The study found no evidence to support that a school configuration made a significant difference in a principal's experience, stability, or tenure.

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Special thank you goes to my wonderful wife, Schvonia and my two children Geavonna Alaina and Gene Autry Starr, III for their sacrifices and support to make this dream possible. Schvonia's Christian faith and her belief in my abilities is what kept me motivated to finish, and I will always be grateful. My mom, Lois Esther Starr, is a mom among moms. I will always be her little boy, and I would not want it any other way. There are several other individuals who provided prayer and support to help me accomplish this endeavor and to them I say thank you; my sister Geniane A. Bell, brother in-law Mickey J. Bell, Opal J. Tanner, Dr. Trudy Greenway, and Dr. James Rehberg.

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However, I am most grateful for the opportunity to be part of the Family of God. Jeremiah 29:11 (KJV), "For I know the plans I have for you," declares the LORD, "plans to prosper you and not to harm you, plans to give you hope and a future."

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DEDICATION

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This piece of research is dedicated to two great men. My father in-law the late Roger Wayne Monismith and my dad, the late Gene Autry Starr, Sr. Their unwavering love and support will live on long after their passing. They both were dedicated husbands, fathers, and grandfathers. They both always wanted the best for their families and those around him. They never met a stranger and were always willing to stop and talk to anyone who crossed their paths. They will be forever loved and missed.

Chapter I

INTRODUCTION

School reform is a demanding process, entailing organizational and programmatic changes that can pose a myriad of challenges to the stakeholders involved. Frequently reform can become awkward, dominating, and time-consuming (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). Waters and Cameron (2007) determined schools are in constant need of dedicated, well-informed, and competent leaders who can guide teachers and students through policy changes in legislation and curriculum. They concluded that effective leadership is more urgently needed today than ever. Efficient educational management is of utmost importance, and the time for upgrading instruction is fleeting (Waters & Cameron).

The National Association of Elementary School Principals (Buckner, 2000) noted the role of principals as supervisors and directors has diminished. Waters & Cameron (2007) identified educational leaders, or administrators, as the catalysts for modifications to the school environment, faculty, facilities, and programs of study. With the restructuring of the school environment, principals take a more active part in training teachers in order to increase student test scores as well as improve daily classroom

performance (Buckner). Additionally, Buckner states, principals motivate the staff and faculty to work together towards achieving the goals of the school and school system.

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According to Stewart (2006), educational leadership and, more specifically, the need for additional school leaders will be focal points in the coming years. This focus is due in part to the passing of the No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002). (No Child Left Behind [NCLB], 2002; Lockwood, 2005). As indicated by Lockwood, each action a principal undertakes within a school is subject to public scrutiny, either through local or state publicity or through the interest of the community. Consequently, parents, students, and the community are holding principals responsible for the successes and failures of the students within their schools.

Statement of the Problem

The No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002), (NCLB, 2002) provided added incentive for Georgia to enhance the educational system and school leadership throughout the state. Scott (2008) maintained restructuring a school system because of new legislation is the final step in the process of restructuring a school and is accomplished through the joined forces of system personnel, school staff, parents, and community members. In Georgia, after the design for restructuring has been put into a formal document, it is submitted to the Georgia Department of Education (GADOE) for approval (Scott). Following an endorsement by the GADOE, schools in the restructuring phase establish a leadership team which oversees the implementation of the restructuring plan (Scott).

As reported by Sergiovanni and Starratt (2006), in order for administrators to significantly affect their school environments, they needed to shift from their conventional position of working within the school to renovating the school environment by becoming “transformational leaders.” They believe the principal has an obligation to

persuade and lead school stakeholders to become united to support the process of change. Waters and Marzano (2006) found that the principal will defend both the unspoken and specific goals of a school district openly and unconditionally in the face of adversity.

The National Association of Elementary School Principals (NAESP) (Buckner, 2000) reported in order to meet the challenge of finding the best leaders for the nation's schools, school systems must first know what leadership traits are exhibited by those principals who lead high-achieving schools and garner student success. To enhance a school system's accomplishments, the leadership has to make a change in management style (Davis, Darling-Hammond, LaPointe, & Meyerson, 2005). Davis et al. indicated the most qualified leader for an innovative school is one who knows how to allocate duties to a variety of personnel in order to reach the diverse population of a school. It is important to note how demographic, social, and technological variations are introducing different challenges for all entities involved in the educational process, but especially for those administrators who will lead the paradigm shift (Davis et al.). Thus, during this time of educational change, many legislators and researchers question whether educational leaders are being prepared through postsecondary institutions and professional development to meet the conditions of the job as defined by the No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002),(NCLB, 2002; Scott, 2008). Therefore, it is essential to understand the effect educational leaders have upon student achievement.

Theoretical Basis of the Study

Leithwood, Seashore-Louis, Anderson, and Wahlstrom (2004) stated the principal is viewed as influencing leadership by example. Thus, school-based leadership has been

traditionally centered on the role of the principal, with the principal being the key person to whom teachers go for advice and guidance. Additionally, the elementary principal determines the instructional and organizational goals for the school for the upcoming year for teachers and other staff (Crowther, Kaagan, Ferguson, & Hann, 2002). Homrig (2001) stated the transformational leader uses motivation to encourage teachers and staff members to share and work towards meeting these school goals.

According to Marzano, McNulty, and Waters (2005), effective leaders evaluate a business or school before implementing change. However, the No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002),(NCLB, 2002) implied that improving school leadership is essential to increasing student achievement (Cusick, 2002). Therefore, the transformational leader, via modeling, will inspire people within an organization to set higher standards for themselves and the company (Cox, 2007). Sears (2006) acknowledged modern conceptions of transformational leadership have evolved from historically top-down leadership styles to approaches which reflect shared decision-making and facilitation. According to Sears, this transformation must be accomplished in a way that does not undermine the leadership role during the transition. Transformational leaders have the capacity to challenge their staffs to perform at a higher level, and all members work toward accomplishing the intended goal (Hay, 2006).

As a result of the endeavors of administrators, teachers, and staff, schools will vary in levels of student achievement (Waters & Marzano, 2006). Additionally, Waters and Marzano found school leadership has a perceivable effect on student success. Therefore, transformational leaders are needed in schools to successfully implement

changes which may result from policies, demographic differences, and school culture (Waters & Marzano).

A recent study of principal turnover by University of Texas researchers, Fuller and Young (2009), points out principal retention is a focal point for those researchers concerned with school reform. Additionally, the exodus among elementary school principals makes it difficult for most school reform initiatives to develop a foothold, let alone come to fruition. At elementary schools identified as high-needs schools, the principal needs to be tenured at the school for at least four to five years (Fuller & Young). Fuller and Young also point out it takes a minimum of three years for principals to make a significant positive difference in the school. Fuller and Young's research also found two factors that influence the length of time needed by a principal at a school before significant change occurs: the length of time the school has been without a principal and the level of student achievement.

Purpose of the Study

Research has revealed a decline in the number of administrators in the field of education (Hoachlander, Alt, & Beltranena, 2001). In Georgia, the need for principals has increased as well (Davis et al., 2005). This need is the result of administrators retiring and resigning in record numbers (Davis et al.). Educators do not want to fill these administrative positions because of the demands of accountability, leadership, and statewide curriculum (Davis et al.). Multi-tasking demands, increased anxiety, as well as insufficient compensation are other factors which may dissuade educators from pursuing careers as elementary school administrators (Hoachlander et al., 2001). Georgia has implemented several strategies to guarantee a sufficient supply of capable and efficient

elementary school leaders to enhance student achievement (Davis et al., 2005). One such strategy Georgia has developed is the Georgia Leadership Institute for School Improvement (GLISI) for the purpose of training, enlisting, and retaining excellent elementary school leaders (Davis et al.).

The purpose of this study was to determine if the characteristics of either the school principal or the school's student population predict student achievement. The study explored the influence of factors such as principal stability, principal tenure, and principal experience of an elementary school principal make on student achievement of third and fifth grade students on the third and fifth grade CRCT and the Grade 5 Writing Assessment. Additionally, differences in principal's tenure (length of service at current school), experience (total years of educational service), and principal stability (number of principals at the school during the ten-year period of the study) by school configuration were examined.

Research Questions

This study was guided by the following research questions:

Research Question 1. Does principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, percentage of minority students, percentage of economically disadvantaged students, or percentage of students identified with a disability predict student achievement as measured by Georgia's third and fifth grade CRCT scores, fifth grade writing scores, and the school index score obtained from the Georgia Education Scoreboard?

Research Question 2. Is there a significant difference between levels of principal stability and levels of principal experience on student achievement in Georgia's elementary

schools as measured by Georgia's third and fifth grade CRCT scores, fifth grade writing scores, and school index score obtained from the Georgia Education Scoreboard?

Research Question 3. Is there a significant difference between levels of principal tenure and levels of principal experience on student achievement in Georgia's elementary schools as measured by Georgia's third and fifth grade CRCT scores, fifth grade writing scores, and school index score obtained from the Georgia Education Scoreboard?

Research Question 4. Is there a significant difference in principal stability, principal tenure, and principal experience by school configuration (prekindergarten through fifth and third through fifth grade)?

Procedures

The procedures for this study are a replication of the procedures designed and utilized by Timothy S. Huff in his dissertation titled *The Relationship Between Principal Tenure, Stability, and Experience and Student Achievement in Georgia Middle Schools* (2009). Data for this study were gathered from the following sources the Governor's Office of Student Achievement, the Georgia Department of Education, and the Georgia Professional Standards Commission. The data collected were used to assess whether a principal's stability, tenure, and experience made a significant difference on student achievement in Georgia's elementary schools. This research includes 1,023 elementary schools in Georgia, 912 of which housed prekindergarten through fifth grade and 111 schools housed kindergarten through fifth grade for the 2008-2009 school year. An additional 48 schools housing third through fifth grades were used in a comparison analysis. All other school configurations housing third and fifth grade were excluded from this study.

Multivariate statistical methods were used to assess the relationship between eight educational input variables and 13 student achievement output variables in the 1,023 Georgia elementary schools included in this study. The eight input variables in this study included the following: principal stability, principal tenure, principal experience, principal race or ethnicity, principal gender, percentage of enrolled students identified as minority, percentage of enrolled students eligible for free or reduced meals, and percentage of enrolled students identified as having a disability.

In order to assess the output variables used in the multiple regression and one-way ANOVA component, the test included the following data: percentage of third and fifth grade students meeting or exceeding standards on the English/language arts, mathematics, reading, science, and social studies sections of the Criterion Referenced Competency Test (CRCT); the percentage of third and fifth grade students meeting or exceeding standards on all sections of the CRCT as reported by Georgia's Education Report Card; and the percentage of fifth grade students meeting or exceeding standards on the Grade 5 Writing Assessment.

The researcher ascertained the predictive relationships which exist between principal stability, principal tenure, principal experience, principal gender, principal race or ethnicity, and student achievement based on the percentage of those students who met or exceeded expectations on the third and fifth grade English/language arts, mathematics, reading, science, and social studies sections of the CRCT, all sections of the CRCT, and the Grade 5 Writing Assessment using a multiple regression analysis. In addition, the researcher used the one-way analysis of variance (ANOVA) to assess the dependent variable of school performance levels in third and fifth grades English/language arts,

mathematics, reading, science, and social studies sections of the CRCT and the Grade 5 Writing Assessment. Additionally, using the Mann-Whitney U Test the independent variables of school configuration were used to determine if there was a significant difference in principal stability, principal tenure, and principal experience between school configurations.

Following approval from the Institutional Review Board (IRB), the researcher obtained data from the Georgia Professional Standards Commission. Chapter three includes a more detailed description of the methods used in this study.

Significance of the Study

According to Scott (2008), studies have found principals have an important role in school reform attempts. During the 1980s and 1990s as the accountability movement began, studies generally referred to as effective schools research were conducted on the value of school. These studies frequently focused on the role of the principal (Scott, 2008). The results of these studies were consistent and reported the principal was an essential key to a successful school (Scott, 2008).

The Educational Research Service (ERS) (1999) determined by 2010 at least 40% of the current public school principals would retire or leave the profession for a number of reasons. High stakes testing and increased accountability for schools has caused many elementary school principals to leave the profession (Richards, 2000). The results of this study could help local and state educational agencies identify ways of recruiting and retaining effective elementary school leaders.

Limitations of the Study

According to Cline and Clark (2000), the limitations of a study are the attributes of the methodology which place restrictions on the interpretation of the study's results. This study assessed schools with varying demographics, teachers, cultures, and leadership styles. These characteristics may limit the generalizability of the study to other states. The design of this study was to determine if a significant difference existed between student achievement and principal stability, principal tenure, and principal experience; however, this study was limited in that no consideration was given to the effectiveness or ineffectiveness of school leadership styles in Georgia elementary schools.

In this study, academic performance was assessed using the reading, English/language arts, mathematics, science, and social studies scores of third and fifth grade students on the CRCT and the Grade 5 Writing Assessment from students in elementary schools consisting of prekindergarten through grade five. Georgia's Single Statewide Accountability System (SSAS) has chosen to use the CRCT for determining school and student success. Therefore, the study is also limited by the ability of these assessments to measure student achievement.

Definition of Terms

Criterion Reference Competency Test (*CRCT*): The CRCT measures the academic achievement of students and their ability to demonstrate their proficiency of the Georgia Performance Standards (GPS). The results are reported for individual student, school, district, and state (GaDOE, 2008b).

Demographics: For the purpose of this study, the demographics of the principal will be defined as years of experience, gender, and race or ethnicity.

Elementary school: For the purpose of this study, an elementary school is a school containing prekindergarten through fifth grades.

Georgia Department of Education (*GADOE*): This division of Georgia's governing body was designed to guarantee that guidelines are accurately followed, and state funding is properly distributed to local school systems properly (Georgia Department of Education, 2008 a).

Georgia Education Report Card: The Georgia Education Report Card a) presents information important to stakeholders consisting of school, system, and state level reports organized into seven major sections: Accountability, Georgia Tests, National Tests, Indicators, Student and School Demographics, Personnel and Fiscal, and Comparisons, b) presents the information in a format that is easily understood, and c) provides easy access to information regarding Georgia's elementary, middle, and high schools (Georgia Public Policy Foundation, 2009).

Georgia Education Scoreboard: Information is provided through a website by the Georgia Governor's Office of Student Achievement (GOSA) (The Governor's Office of Student Achievement, 2009), which presents significant and clear data on the condition and progress of education in Georgia to parents, educators, business and government leaders, and community-based organizations.

No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002), (NCLB, 2002): President George W. Bush signed the federal legislation No

Child Left Behind (NCLB) Act (Public Law 107-100) into law in 2001. This act was designed in order to reorganize and improve standards based education (Lewis, n.d.).

Principal: For the purpose of this study, a Georgia elementary school principal is accountable for directing the planning, assessment, instructional leadership, communication, community relations, safety, and administrative management required to manage the instructional programs, organization, and facilities of an assigned elementary school.

Principal Experience: Principal experience was reported as the total number of years in public education as a certified educator. This information was requested from and provided by the Georgia Professional Standards commission (GaPSC, 2009).

Principal Stability: Principal stability was determined by calculating the average number of principals per school over a ten-year period from July 1, 1999 through June 30, 2009. Data needed to calculate principal stability were requested from and provided by the Georgia Professional Standards Commission (GaPSC, 2010).

Principal Tenure: For the purpose of this study, tenure is the total number of years the 2008/2009 principal had been in his or her current position.

Socioeconomic status (*SES*): According to the National Center for Education Statistics (2009), socioeconomic status "is a measure of a student's relative economic and social ranking." Thus, for the purpose of this study, the students' qualification for free and reduced lunch will be used to identify their socioeconomic status.

Student achievement: For the purpose of this study, student achievement is defined as the percentage of students meeting or exceeding standards on the third grade English/language arts, mathematics, reading, science, and social studies sections of the

CRCT, the percentage of fifth grade students meeting or exceeding standards on the fifth grade English/language arts, mathematics, reading, science, and social studies sections of the CRCT, the Grade 5 Writing Assessment, and the percentage of students meeting or exceeding standards on all sections of the CRCT as reported on the Georgia Education Scoreboard (GOSA, 2008)

Organization of the Study

This study consists of five chapters. Chapter 2 summarizes the literature related to differing roles of leadership in elementary schools. The review of the literature encompasses the historical perspective of the principal, characteristics of the elementary school principal, principal tenure, student achievement and socioeconomic status, and school culture and climate. Subsequently, Chapter 3 includes the methods and procedures utilized for this study. A description of the research design, participants, and process for gathering data is also included. A discussion of the findings is presented in Chapter 4. In Chapter 5, the researcher presents the conclusions, recommendations for future studies, and implications for practice.

Chapter II

REVIEW OF RELATED LITERATURE

The principalship is multifaceted, and it becomes increasingly complex with the changing economy, community demographics, cultural diversity, and new legislation (Gamage, Adams, & McCormack, 2009). As a leader, the principal supervises teachers and manages the business aspects of the school (Gamage et al., 2009). Gamage et al. identified the following elements as important aspects of the principalship: (a) establishing a vision and mission, (b) acquiring adequate funding and resources, (c) allowing for the individuality of staff, (d) knowing the legalities of running a school, (e) having the ability to make school-based decisions, and (f) assuming the responsibility and accountability for managing all aspects of the school. In addition, effective principals must demonstrate the ability to support, inspire, and motivate teachers to establish a successful learning environment and move students to higher achievement (Hoachlander et al., 2001). The expectations of an administrator is one who is a visionary, a disciplinarian, a relationship builder, a financial expert, a facilities manager, a special programs administrator, understands instruction and curriculum, is data driven, and has a keen understanding of the legal and political nature of education (Davis, Darling-Hammond, LaPointe, & Meyerson, 2005).

The purpose of this study was to determine if the characteristics of either the school principal or the school's student population predict student achievement. Do factors such as principal stability, principal tenure, and principal experience of an

elementary school principal make a significant difference in student achievement of third and fifth grade students on the third and fifth grade CRCT and the Grade 5 Writing Assessment, and is there a significant difference in the principal's tenure (length of service at current school), experience (total years of educational service), and principal stability (number of principals at the school during the ten-year period of the study) by school configuration?

This literature review begins with the historical evolution of the principalship and characteristics of effective elementary school principals. Other broad topics include school climate, and socioeconomic status of students. A review of the potential principal shortage, principal tenure, and attrition rates of principals is included as well. Finally, the role of the principal as an agent for collegial school change and reform is discussed.

Historical Evolution of Elementary School Principals

The role of elementary school principals has evolved over the last three hundred years (Weiss, 1992). According to ~~Weiss,there~~Weiss, there were various titles given to educational leaders prior to being called principal; Schoolmaster, Headmaster, Teaching Principal, Building Principal, and Supervising Principal. The combination of all of these roles has evolved into the position of elementary school principal (Weiss). Weiss also indicated school administration did not emerge at the same time, but it appeared in different regions at varied times. Secondary schools saw the development of principalship before elementary schools (Weiss). Pellicer, Allen, Tonnsen, and Surratt (1981) concurred the principalship has had frequent and irregular phases in its development.

During the mid 17th century, the Massachusetts Law of 1647 was enacted, requiring the formation of an elementary school and the hiring of a teacher for towns

having 50 or more families. If there were more than 100 families, a grammar school would also be established to prepare students to attend Harvard (Jones, 1969). Initially, these schools were managed by Selectmen, who became the first school managers. However, Jones posited that the number of problems presented by local schools overwhelmed the Selectmen. As a result, special committees, known as school boards, were appointed to provide assistance (Jones). The first supervising principal was Horace Mann, –appointed in 1821at the Quincy School in Boston ,and Horace Mann's his primary role was teaching and student supervision (Faber & Sheraton, 1970). Nevertheless, no historical date has been established to document the emergence of the first elementary school principal (Pellicer, Allen, Tonnsen, and Surratt, 1981).

The role of principal initially was not one of authenticated leadership (Spain, Drummond, & Goodlad, 1956). The selection of school principals was based on their ability to teach, understand children, and recognize problems that occur in schools (Spain et al., 1956). Spain et al. reported as the enrollment in schools increased, so did the complexity of the problems within the school. The changes in schools resulted in a need for the role of the school principal to undergo a transformation. More leadership was needed, and the administrator's position changed from a "residing teacher" to a "directing manager" (Pellicer et al., 1981).

Gross and Herriott (1965) indicated the formation of the National Association of Elementary School Principals (NAESP) in 1921 strengthen the principal's role. As noted by Gross and Herriott, the NAESP's primary mission was to change the perception of the principal's position, duties, and responsibilities. Those changes would result in no longer

having the principal serve as the school "housekeeper," but as an instructional leader (Gross & Herriott; Praisner, 2003).

Responsible for bringing needed changes to the principal's position, the accountability movement began with the Elementary and Secondary Education Act of 1965 which was resulting in a transition from a managerial role to one of instructional leader, and later to the role of reformist (Sears, 2006). Buckner (2000) concurred the aforementioned duties and responsibilities compose the role of an elementary school principal. Sears (2006) noted many studies endeavored to find an adequate description for the role of the principal: instructional manager, inspirational leader, resource manager, organizational expert, cultural leader, teacher advocate, yet none captured the true essence of the principal's role.

According to the Bureau of Labor Statistics, U. S. Department of Labor, *Occupational Outlook Handbook* (2007), the duties and responsibilities of a principal continue to be broad and ever-changing, but the foremost responsibility of principals was to establish the academic tone of the school. Additionally, the *Occupational Outlook Handbook* pointed out the principal was responsible for the selection, supervision, and evaluation of personnel as well as providing opportunities for professional growth. These additional duties required principals to become the liaison among various stakeholders working together to build a better school through shared decision-making (Apodaca-Tucker, Slate, & Brinson, 2002). In this role, elementary school principals seldom were able to delegate their managerial responsibilities of budgeting, fundraising, purchasing and allocating of supplies but were still expected to be responsible for high student achievement (Pringle & Cox, 2007).

Pringle and Cox (2007) suggested today's elementary school principals must be instructional leaders, grow their teaching staffs professionally, collect data, and work with the various stakeholders within the community in support of improving student achievement. Davis et al. (2005) specified the duties and responsibilities of an elementary school principal include creating a shared vision, leading instructional and curriculum reform, analyzing data, managing student behavior, building consensus, aligning community support, managing the school's finances and facility, overseeing special programs, and having a sound understanding of the legal and contractual issues that relate to education. Further, today's elementary school principal is encumbered with various responsibilities: maintenance, school law, human resources, and public relations, which are important to the operation of a school but are not vital and have little to do with improving student achievement (Kingston, 2005). Catano and Stronge (2007) reported there is enormous political pressure exerted on elementary school principals to improve instruction within their school and raise the level of pupil success as well as maintain facilities, run a well-disciplined school, and deal with fiscal restraints.

Characteristics of Effective Elementary School Principals

Elementary school principals manage and direct students more closely than principals of upper grade levels (Buckner, 2000). Hoachlander et al. (2001) noted principals, superintendents, and other school leaders are accountable for establishing a school environment which encourages high achievement through a meticulous curriculum. Accordingly, Braun, Gable, and Kite (2008) found evidence an administrator who establishes a good rapport with his teachers and students positively affects academic achievement and the educational environment.

Portin, Alejano, Knapp, and Marzolf (2006) noted national and state testing has changed the roles and responsibilities of school principals. As noted by Hoachlander et al. (2001) these tests include standardized tests, norm-referenced and criterion-based assessments, performance testing, portfolios, and competency-based assessments. Additionally, these assessments forced principals to become more accountable for teaching and learning in schools (Portin et al.). Hoachlander et al. also noted it is imperative school principals have a firm understanding of testing and accountability in regards to student achievement. Viadero (2009) found the nationwide effort to hold principals accountable for their students' performance on standardized tests contributed to the principal turnover rate. Thus, academic accountability created a need for school administrators to be trained to interpret the data gathered from assessments in order to direct the progress of the school as instructional leaders (Hoachlander et al.).

As a result of principals striving to improve instruction and student achievement, in 2001 with the passage of the No Child Left Behind Act there was a need for principals to initiate reform within their schools (Fullan, 2008). Additionally, the accountability process, which had occurred in society, legislatures, and the educational community, mandated a need for change (Portin et al., 2001). Accordingly, Kingston (2005) described the principal as a "change leader." Principals encouraged teachers to think about methods used in the classroom, develop an understanding of these methods, and search for ways to enhance these methods (Sergiovanni & Starratt, 2006). Sergiovanni and Starratt further found the changes made would be insignificant if the appropriate environment and climate were not in place first, as the appropriate environment sustains

both the psychological and symbolic needs of elementary school principals and their staff.

At the center of school reform is the establishment of a shared vision within the school (Braun, Gable, & Kite, 2008). Braun et al. have reported a shared vision can be achieved by including teachers in the decision-making process of restructuring the school. ~~Braun et al~~They~~.~~ noted a combination of a transformational role and shared instructional role could improve student success. In addition, an administrator's primary goal is to promote leadership and management decisions at all levels within a school (Fullan, 2008). Principals are responsible for ensuring teachers are included in making decisions about the operations, instruction, and curriculum of the school as well as making decisions about financial plans and staffing duties (Apodaca-Tucker et al., 2002).

Hoachlander et al. (2001) found keeping parents involved in their child's education has a positive effect on student achievement. They purport, in addition to managing teachers, principals are responsible for working with parents and networking with various members of the community. Additionally, parents and members of the community are a good source of information, volunteers, guest speakers, and chaperones for various events (Hoachlander et al.). Furthermore, inviting and allowing parents and community members to contribute to the management and government of the school created an open line of communication and participation among the three entities and thus helps to reduce principal turnover (Marzano, McNulty, & Waters, 2005).

Ballantine (1999) noted creation of a positive learning environment has been a school issue for decades. Therefore, maintaining a safe and secure learning environment has become another major role and responsibility for principals (Marzano, 2003).

Incidents of violence are proportionately lower in elementary schools than secondary schools; however, the percentages for acts of bullying, disregard for authority, and physical altercations have been increasing at the elementary school level (Characteristics of Elementary School Principals, 2006).

Principal Turnover and Retention

During the last decade of the twentieth century, researchers predicted school systems would have difficulty filling principal vacancies created by the large number of administrators leaving the profession (McAdams, 1997). In 1998, the Educational Research Service (ERS) working with the National Association of Elementary School Principals (NAESP) and the National Association of Secondary School Principals (NASSP) calculated that in the next decade there would be a shortage of qualified individuals to lead our schools. The Educational Research Service (ERS) (1999) determined by 2010 at least 40% of the current public school principals would retire or leave the profession for a number of reasons. Additionally, the US Department of Labor estimated that, in 2005, a 10% to 20% deficit of educational leaders would occur when 37,280 of 93,200 principals reached retirement age (Blackman & Fenwick, 2000). A Georgia study conducted by Nweke, Afolabi, Stewart, and Stephens (2003) on the non-teaching educator workforce found the attrition rates among principals were between 12% and 16%, indicating retirement is not the only reason principals are leaving their positions. Based on the data provided, Viadero (2009) stated most new principals are no longer in the same position after five years and often have left the profession. Based on educational employment data in Texas in 2007, 52% of Texas principals left their jobs in the first three years (University Council for Education and Administration, 2008). The

data also revealed that the turnover rate was highest in high school principals at 61% and lowest at the elementary level at 47.8% who leave their position during the first three years of service. Principal turnover has increased the most in elementary schools by 5.5% from 1995 – 2007 (University Council for Education and Administration, 2008). Based on the large number of principals retiring, the Bureau of Labor Statistics (2007) purport over the next 10 years, there will be many opportunities for individuals seeking a principalship.

The United States is not alone in dealing with this crisis. According to Kohls, Grimmott, and Kitchenham (1999), Canada will realize a shortage of candidates for vacant principal positions as well. Steffenhagen (2000) reported numerous school districts are already feeling the effects of the principal shortage and are finding a limited number of qualified applicants for their vacant Canadian positions. Over the next decade the prediction is that the situation will worsen, especially at the secondary level (Steffenhagen, 2000). Additionally, Tirozzi (2001) reported the new millennium will bring an increased deficiency in the number of individuals willing to take on the responsibilities of a principal. The lack of enough qualified individuals willing to accept the responsibilities of school principal may hamper the ability of schools to provide their students with a quality education (McKenna, 2005).

In 2001, of the 176 superintendents Whitaker surveyed, 89% reported a moderate to extreme shortage of qualified principal candidates. Roza, Celio, Harvey, and Wishon (2003) conducted a study for the Wallace Foundation and did not find evidence that a shortage of qualified principal candidates would exist in the impending future. Additionally, Gates, Ringel, Santibanez, Chung, and Ross (2003) for the Wallace-

Reader's Digest performed a research study resulting in data which found little evidence to affirm the predicted national shortage of certified applicants seeking a school administrator position. However, this study indicated several areas of concerns the education community could face in retaining and recruiting qualified administrators: retirement, variation in career incentives, and barriers for teachers who may seek an administration position.

In a Texas study on retention and tenure of newly hired principals, Fuller and Young (2009) suggested the following:

- There is a drastic difference in principal tenure and retention rates among all school levels, and elementary schools had the highest in both areas.
- Student achievement will influence the retention rates of principals especially during their first year of employment. Low achieving schools will have principals with the shortest tenure and lowest retention rates and high achieving schools will have principals with the longest tenure and highest retention rates.
- The number of economically disadvantaged students within a school may have an undeniable affect on principal tenure and retention rates. Principal retention is lower for schools that have a high-poverty rate than for schools with a higher socioeconomic rate.
- Rural and small school districts' principal retention is often lower than suburban districts whose students tend to be white and not as economically challenged.
- The individual traits of principals like age, race or ethnicity, and gender may have only a small effect on principal retention rates.

- Performance on state certification tests has little bearing on principal retention rates.

Developing and Supporting School Leaders

Over the last decade, the role of the local school principal has gained an enormous amount of attention. This attention is partially due to the demands of the No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002), but it is also attributed to the increasing public demands for more effective schools (Davis, Darling-Hammond, LaPointe & Meyerson, 2005). There has been a significant change in the role and responsibilities of the school principal as well as the expectations of the job (Davis et al., 2005). The traditional methods of leadership preparation no longer meet the job responsibilities expected of today's principal (American Association of Colleges for Teacher Education [AACTE], 2001; Levine, 2005; Peterson, 2002). Schools systems are now faced with two major issues: the ability to find, hire, and retain highly qualified school leaders (Knapp, Copland, & Talbert, 2003), and those individuals who are seeking a principal position or who are currently holding those positions lack the proper preparation and support needed to successfully meet the demands of the job (Levine, 2005; Young, 2002). In Hertling's 2001 study on reasons why principals are leaving their jobs, he also identified several areas which would be beneficial to maintain or increase current principal retention rates: job sharing, reinvention of the principal role, and improving the quality and quantity of professional development offered.

Chapman (2005) indicated studies conducted on the professional development needs of school leaders found while there is no best method for the delivery of professional in-service, there is a need for varied learning opportunities from which

school leaders may select based on their current need(s). He indicated the learning opportunities may be, but are not limited to, study groups, advanced seminars, reading and discussion groups, presentations by expert practitioners, attendance at national conferences, forum or institutes, mentors, or the opportunity to become coaches or facilitators themselves. Chapman (2005) explained learning should be systematic and planned in a manner which will provide activities to enhance knowledge and skills to maximize principal leadership in all administrative areas for success in their work settings.

Local school districts will face the daunting task of replacing thousands of principals over the next five years (Bureau of Labor Statistics, 2006). It is of the utmost importance those candidates are provided significant professional development and support in order for their schools to succeed (Peterson & Kelley, 2001). According to Darling-Hammond, LaPointe, Meyerson, Orr, and Cohen (2007), there is a national focus on raising the achievement scores of all students, and all the stakeholders involved recognize the role the educational leader plays in developing schools with high success rates, and (Darling-Hammond et al., 2007) . Darling-Hammond et al. (2007) further added with the increased awareness regarding the role the principal plays in improving student achievement, there was a lackluster effort to provide support for school leadership. In 2002, Peterson reported school principals were overlooked in the reform effort of the last two decades. Hale and Moorman (2003) supported the notion there has not been an organized effort by either formal institutions or local school districts to provide the needed support in formal professional development to help school leaders face the task of improving student achievement for the 21st century.

Universities that prepare administrators and the school districts that employ them are challenged to create support mechanisms designed to increase administrator resiliency and help ease the stress created from the demanding environments they face (Hoffman, 2004). Sears (2006) believed principals will continue to need additional support and assistance in order to create effective schools. The work of universities and those entities responsible for providing ongoing support for the further development of school leaders must base instruction on current research on school leadership, management, curriculum and instruction (Davis et al., 2005).

In 1996, the Interstate School Leaders Licensure Consortium (ISLLC) published a set of common standards for the professional practice of school leaders. These standards are being used in more than forty states as part of their administrative preparation or certification programs (Waters & Grubb, 2004; Waters, Marzano, & McNulty, 2003). According to Hopkins-Thompson (2000), ISLLC standards and other educational reform mandates related to school improvement initiatives are challenges school leaders must be prepared to face in their positions as educational leaders, and given the complexities of the principalship, it is understandable why state organizations are studying ways to recruit, retain, and improve the preparation of their principals.

The School Administrators of Montana (SAM) and Montana State University (MSU) studied ways to recruit, retain, and improve the preparation of Montana's principals (Saunders, 2008). One program implemented was a new mentoring program, Principal's Advisory Leadership Project (PALS), implemented by SAM. PALS was a National Principals Mentoring Certification Program where principals received training to become certified mentors (National Association of Elementary School Principals

[NAESP] 2003). Mentoring has been suggested as an effective tool for supporting principals at different developmental stages of their leadership career (Alsbury & Hackman, 2006; Chapman, 2005). Gray, Fry, Bottoms, and O'Neill (2007) suggested principal preparation programs incorporate a mentoring process as part of their training programs in order to provide a support system for the real life experiences new principals will face. The outcome of the mentoring program recommended by Gray et al. is to raise student achievement by improving leadership preparation through research-based experiences. Crow and Mathews (1998) found seasoned principals revealed mentoring was beneficial to their success. The State of Georgia has been proactive in establishing Georgia's Leadership Institute for School Improvement (GLISI) in an effort to train, recruit, and retain capable leaders (Davis et al., 2005).

Student Achievement and the Principal

In the past, there has been an insignificant level of accountability or a need for principals to be involved with improving student achievement or teacher performance (Usdan, McCloud, & Podmostko, 2000). Consequently, a greater emphasis was placed on principals' ability to manage the needs of their individual schools (Usdan et al.). The demands of the No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002),(NCLB, 2002) and the need for students to achieve have created a greater degree of accountability for school leaders, especially school principals (Gordon, 2003). This, in turn, according to Gordon created the need for principals to develop ways to improve student performance and avoid sanctions on their schools when deemed low performing. As a result, the new focus for accountability is on school leadership and the ability to improve student achievement (Usdan et al.).

According to Kingston (2005), improving student achievement is the major responsibility of school leaders due to increased accountability for students and schools. Gordon's (2003) research conducted in the 1970s and 1980s on effective schools indicated that a strong educational leader positively influences performance. Edmonds' (1979) views differed from those of the *Coleman Report* which highlighted the importance of students' socioeconomic status in regards to their ability to be successful in school. Edmonds reported the need for strong school leadership in order for students to have an education of value. He drew this conclusion based on his research of instructional effectiveness in Detroit schools and a review of previous research on effective schools in California, Michigan, and New York.

Dunford, Fawcett, and Bennett (2000) maintained there was agreement among scholars that effective leadership at the principal level is invaluable if a school wishes to be successful. Leithwood, Jantzi, and Steinbach (1999) reported the principal's leadership will have more influence on school improvement, school planning, school structure and organization, as well as school vision and mission than any other factor. Thus, Cotton (2003) attributed the performance of the principal as a key indicator in effective schools. Austin (1979) confirmed a causal relationship existed between the principal's influence and a school's effectiveness. He also concluded the principal was the difference between low and high achieving schools. The 1980s "effective schools" research was attributed with recognizing the value of the principal's role in improving student achievement (Hallinger & Murphy, 1986).

According to the report by The Center for Comprehensive School Reform and Improvement (2005), the influence of the school principal and the superintendent are

closely linked to student achievement. In 1990, Bass also reported the leadership of a school is a determinant to the school's success. Purkey and Smith (1985) believed one of the key factors for improving student performance is school leadership. Hausman (2000) noted the role of the principal was vital in developing and sustaining an effective school. Authors Leithwood et al. (2004) made the following assertion regarding school leadership. They stated, "leadership is second only to class instruction among all school related factors that contribute to what students learn at school and leadership effects are usually largest where and when they are needed most" (p. 7).

In 2001, the Mid-continent Research for Education and Learning (McREL) conducted a comprehensive review of over 5000 studies (Waters, Marzano, & McNulty, 2003). The primary purpose of the reviewed studies was to determine if a relationship existed between school leadership and student performance. Waters and Marzano (2003) found a .25 average effect size between the correlation of principal leadership and student achievement. Principals have an indirect influence on a school's effectiveness and student achievement (Hallinger & Heck, 1998). After analyzing forty studies conducted from 1980 to1995, Hallinger and Heck found of all the variables within a school, the principal had a 25% impact on student achievement. Additionally, Scheerens and Bosker (1997) found a slight, but positive, correlation between the principal and student achievement.

Until recently, finding an effective way to measure the impact of a principal on student achievement has been difficult. However, Bottoms, O'Neill, Fry, & Hill (2003) concluded a principal's leadership could influence student achievement as much as 20%. This was also supported by the previously cited work of Waters et al. (2003) in the McREL study. These researchers found a .25 average effect size between the correlation

of effective school leadership and student achievement. It can be concluded an effective principal is responsible for creating a climate conducive to learning, promoting teacher efficacy and professional growth, developing community support, and setting high expectation for student achievement (Azzara, 2000; Day, 2000; Riehl, 2000).

Socioeconomic Status and Student Achievement

A student's socioeconomic status is a measure of family position in the community, the parents' education levels, and the parents' occupations (Demarest et al., 1993). According to Caldas and Bankston (1997), there are many variables used to help determine a student's socioeconomic status: federal free and reduced lunch program, parents' education level, income and occupation, and the number of books and other resources found in the home.

One of the goals of the Elementary and Secondary Education Act (ESEA) of 1965 was to ensure all students have an equal opportunity to learn and achieve high standards without the risk of discrimination based on the student's race, ethnicity, or economic status. In 1966, a significant study on *Equality of Educational Opportunity*, commonly referred to as the *Coleman Report*, highlighted the importance of students' socioeconomic status in regards to their ability to be successful in school (Coleman et al., 1966). According to Coleman et al (1966), a student's background contributes to a student's ability to achieve more than any other variable within a school. Additionally, the findings of the *Coleman Report* suggested the school had little or no effect on student achievement. Rather, the status of the family was the major factor in determining a student's ability to succeed (Coleman et al.). In contrast White (1982) conducted a study analyzing over 200 studies focused on student achievement and socioeconomic status and

did not find a significant relationship (r =.22). A replication of White's study by Sirin (2005) used studies from 1990-2000, and his findings suggested that a stronger relationship existed between socioeconomic status and student achievement. For a more extensive examination of the results from White's 1982 study, Sirin, using a new meta-analysis, found the initial 1982 study had a .343 correlation and Sirin's review of the study had a .299 correlation. The results showed a slight variation regarding the relationship between a student's economic status and his or her ability to achieve and concluded that students' socioeconomic status did contribute to their academic success.

In 2001, the re-authorization of the ESEA of 1965 in the form of the No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002),(NCLB, 2002) was enacted. This new legislation mandated by the year 2014 all students would reach academic proficiency regardless of their socioeconomic status. Each state and local school district was mandated to improve student achievement using standardized tests as the measure for proficiency (NCLB, 2002).

School Climate and Student Achievement

School climate is defined as "the perceived subjective effects of the formal system, the informal 'style' of managers, and other important environmental factors on the attitudes, beliefs, values and motivation of people who work in a particular organization" (Litwin & Stringer, 1968, p. 5). Sergiovanni and Starratt (2006) have found a school's climate to be determined by the school staff and students and how they feel about the psychological make-up of the school and their ability to be successful. Hoy and Miskel (2007) define school climate as the dynamics within a school that are different from other schools and have an impact on the members of the school. Mace-Matluck

(1987), Cruickshank (1990), and Bliss, Firestone, and Richards (1991), in their reviews of effective schools research, agreed an orderly climate was one of a set of core variables which influenced student achievement in schools. Furthermore, Hoyle, English, and Stefry (1985) concluded school climate may be one of the most important elements of a thriving instructional program. If a school climate fails to produce a well-balanced and highly functioning school, a high level of academic achievement will be difficult to attain. A school's learning climate is a combination of the attitudes and actions of the teachers and students, and the interactions of these two groups ultimately determine the academic success of the school (Brookover, Erickson, McEvoy, &Beamer, 1996).

Research has shown a correlation between a school's climate and student achievement (McCray, Wright, & Beachum, 2004). When educational change is needed within a school, the climate established by the school principal has a direct effect on determining the success of the desired change (McCray et al., 2004). A positive school climate may influence a school in the following ways: a) improved teacher performance, b) staff and student morale, and c) student achievement (Freiberg, 1998). Cohen, Pickeral, and McCloskey (2008) found student achievement is positively affected by a constructive school climate, and there is empirical research supporting this assumption. Bulach, Malone, and Castleman (1995) found more than a passing relationship between student achievement and a school's climate. A study conducted by Feigenberg (2007) found a positive relationship between student reading achievement and schools which exhibited wholesome climates. However, Smith (2008) failed to find a positive relationship between a school's climate and mathematics achievement, but he did find a moderate relationship between climate and English proficiency.

A school climate conducive for student success was indicative of having a strong instructional leader in place (Grubbs, Leech, Gibbs, & Green, 2002). Smith, Hoy, and Sweetland (2003) confirmed a relationship did exist between students' achievement and the condition of a school's climate. However, these authors noted that the relationship between academic focus and the climate element had a more significant relationship than the climate measured. Thus, student achievement is related to the relationships which existed between students, teachers, and administrators (Ellett & Walberg, 1979). Urban (1999) stated a climate must promote positive experiences for students if they are to maximize their full potential and have an opportunity for success. Culpepper's (1996) study of 698 teachers in 41 elementary schools and Montoya and Brown's (1990) study in two elementary schools failed to find a relationship between a school's climate and student achievement.

Gordon (2003) found principals are essential in determining the climate of a school. One explanation for a principal garnering success is having an effective school climate; in addition, a principal's opportunity for success is often influenced by the school's climate (Halawah, 2005). A healthy school climate is essential for a principal's success because of the school's potential influence on student achievement (Maslowski, 2001). A study conducted with 87 elementary schools in the United States by Hallinger, Bickman, and Davis (1996) indicated a school's learning climate may have an indirect effect on student achievement. The research conducted on Flemish technical secondary education found a school's leadership will indirectly affect the school climate and student achievement (DeMaeyer, Rymeans, Van Petegem, Bergh, & Rijlaarsdam, 2007). Student achievement is often the result of the success of the local principal's ability to create a

learning environment where teaching and learning may occur (Gamage, Adams, & McCormack, 2009).

Principals Role in School Reform and Change

A growing body of research indicated a school's principal will affect a school, its teachers, and student achievement (Heck & Hallinger, 1999; Leithwood & Jantzi, 2000). Specifically, research has found principals indirectly influence student achievement through several key areas including people, purposes and goals of the school, structure of the school and social networks, and organizational culture (Fuller & Young, 2009). Miles (1971) spoke pointedly about the principal's role as a reformist and change agent within the school. He found years of research have concluded that without the encouragement and support of the principal, no other group of individuals can achieve change within a school. Therefore, Miles concluded, the principal is the one who is responsible for bringing about needed reform and change and can no longer be overlooked in the process.

Hall and Hord (2006) described change as a progression, not a single occurrence. Even with a well-prepared plan of implementation, the complexity of school change can create failure unless there is willingness of all stakeholders to accept responsibility for the change process (Hall & Hord). Hall and Hord indicated strong leadership is essential when dealing with change and school reform efforts. Districts that fail to recognize the importance of the leader's role for anticipating change, dealing with the impact of change, and maintaining support for changes will not benefit from the change and reform initiative (Hall & Hord). There is a need for the leadership of school systems responsible for the selection of future administrators to choose visionary individuals who will

position themselves as the instructional leaders of the schools (Tirozzi, 2001). Pechman and Fiester (1994) identified several challenges school leaders face during the implementation of school wide reform: adequate time to learn new roles, communication and involvement, moving beyond reduced class size, adequate training for the utilization of new resources, including appropriate stakeholders in the reform efforts, stabilizing change, and decreasing achievement inconsistency.

Principals of tomorrow's schools will need to excel in curriculum, provide innovative strategies for delivering instruction, and utilize data for decision-making. Tirozzi (2001) concluded principals will need to set the tone for their buildings by facilitating the teaching and learning process, providing leadership and direction to their school's instructional programs and policies, spending significantly more time evaluating staff and mentoring new teachers, sustaining professional development for themselves and their staff members, and nurturing personalized school environments for all students.

A system often fails to experience change when its stakeholders are satisfied with the current status-quo. In order to start the change process, typically one or two situations must exist according to Waters and Cameron (2007): "the emergence of a shared vision that challenges the current reality" and/or "the current reality is so unpleasant that individuals or groups are willing to accept the risk and discomfort associated with changing the status-quo..." (pp. 34-35). As noted by Heck and Hallinger (1999) and Leithwood and Jantzi (2000), a school reform effort requires a common school vision created and maintained by the principal, and the implementation will take several years. The principal serving as the facilitator of change may create tension when the change process is moved

more rapidly than the other participants believe is acceptable (Sears, 2006). According to Fuller and Young (2009), principals are not staying at a school long enough to guide a reform initiative. In order for schools to sustain quality improvement, it is critical to minimize principal turnover and retain principals for at least five years (Fullan, 2001).

Waters and Cameron (2007) asserted even having a strong leader in a school and making the needed changes within the school may produce an adverse affect on student achievement if not all of the stakeholders are considered. Sergiovanni and Starratt (2006) indicated in most situations change is difficult but can be particularly trying unless conditions are right. Those conditions must support both the psychological and symbolic needs of individuals in the system. Reeves (2009) asserted there are actions leaders must initiate in order for change to work including defining what will not change, changing the leader's actions, using the right change tools for the system, and finally, maintaining constant attention to the change initiative. Fullan (2002) indicated principals are the factor for maintaining reform and creating effective schools. Spiro (2009) stated the agent of change would need to develop and identify the strategies for change and their effect on the rest of the system. Snipes, Doolittle, and Herlihy (2002) identified seven challenges faced by four large urban school districts prior to implementing school reform:

1. Poor academic achievement from minority and low socioeconomic students;
2. Lack of focus on student achievement based on years of political strife;

3. A disproportion of inexperienced teachers, high turnover rates, adverse working conditions, and inequality among teaching workforce;
4. Low expectations and lack of a rigorous curriculum from teachers for minority and low socioeconomic status students;
5. Lack of district support to provide an aligned curriculum for all schools;
6. High student mobility resulting in a lack of continuity of learning;
7. Lack of community support for providing the basic essentials for managing effective classrooms and a continuation of the good-ole-boy system for hiring rather than promoting and hiring based on ability.

All of these issues must be addressed in order to improve student achievement. Togneri and Anderson (2003) noted several other obstacles systems would face during the change process:

1. The ability of traditional principals to adapt to the new reform initiative created by the increased demands of an ever-changing accountability system;
2. The ability to finance the reform efforts by finding the necessary support from local business and industry, creative grant writing, and/or school restructuring;
3. Overcoming the internal and external structures of the existing school system to allow true reform to take place.

Sears (2006) states because of the increase in school accountability, the role of today's principals and their responsibility for implementing educational reform cannot be underestimated. However, there are contrasting views on the

effectiveness of the principal as a change agent. Sarason (1996) reported principals, based on their fundamental training, present obstacles to change, and the traditional roles of the principal's position are not fundamentally oriented toward change. For authentic organizational change to occur, it takes more than changes in the school's structure and practices. An organizational change takes buy-in from all the stakeholders and a willingness to support the desired outcomes (Sears). In order for any school system to undergo a successful change initiative, the following are essential: (a) an establishment of strong leadership for change, (b) preparation for the impact of change, and (c) continuous support for change (Bell, 2009). A vital reason change oftentimes is not sustained in schools is connected to the amount of administrator turnover (Moffett, 2000). Although statistics vary, the average tenure for a successful principal is three to five years (Hall & Hord, 2006). Principals are often changing schools or moving to the district office, and this is why many school initiatives are not given ample time to become firmly established in the school's culture (Moffett, 2000).

Summary

As indicated in the literature review, student achievement is influenced by a school's principal (Dunford, Fawcett, & Bennett, 2000; Gordon, 2003; Leithwood, Jantzi, & Steinbach, 1999; Waters, Marzano, & McNulty 2003). Kingston (2005) pointed out improving student achievement is the major responsibility of school leaders based on the increased accountability for students and schools. As a result of the passage of the No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002),(NCLB, 2002), a greater

degree of accountability has been placed on school leaders, especially school principals, creating the need for principals to develop ways to improve student performance. According to Hoachlander et al. (2001), effective principals must demonstrate the ability to support, inspire, and motivate teachers to establish a successful learning environment in order to move students to higher achievement.

Leithwood and Jantzi (2005) suggested a successful school leader will influence student achievement primarily through their influence on staff, including promoting teacher efficacy, establishing a school mission and vision, creating a positive school learning culture, and expecting rigorous content to be taught via effective instruction. School leaders with high self-efficacy expect great things from those individuals with whom they work and ultimately positively influence student achievement (Bandura, 1997; Protheroe, 2008; Rice, 2010).

The roles, responsibilities, and expectations of a school principal have significantly changed in the last decade, and these changes have created a shortage of qualified principals (Davis et al., 2005). The principal shortage has been created by the stressors of the job and its responsibilities (Buckner, 2000). Research indicates over the next several years it will be difficult to find individuals willing to assume the responsibilities of the new millennium principal position (Nweke, Afolabi, Stewart, & Stephens, 2003; Tirozzi, 2001; Viadero, 2009).

The pool of qualified applicants for elementary school principal positions is diminishing; the high level of stress, time demands, broadening job

requirements that exceed salaries, and new state accountability are blamed for this decline (Kerrins, 2001). The principalship was once known as a position of stability but is now facing unprecedented turnover, and even more disturbing is that the most effective principals are the ones most likely to leave their current positions (Barth, 1990). As previously indicated by Hall and Hord (2006), the average tenure for a successful principal is three to five years.

Chapter III

METHODOLOGY

This chapter details the quantitative methods used to conduct the study. The research design, population, and the instrumentation, including the reliability and validity for the study are described. In addition, the data collection, data analysis, and statistical assumptions are presented.

Research Design

In this study an ex post facto correlational and group comparison research design was employed. This study was an ex post facto design because it lacked the ability to randomly assign groups, to manipulate the independent variables, and the cause and effect conditions had already occurred (Gall, Gall, & Borg, 2007).The data were gathered for this study was from the Georgia Professional Standards Commission (GaPSC, 2010) and the Governor's Office of Student Achievement (GOSA, 2009).

The eight independent variables for the study are (a) principal stability, (b) principal tenure, (c) principal experience, (d) principal race or ethnicity, (e) principal gender, (f) percentage of minority students, (g) percentage of economically disadvantaged students, and (h) percentage of students identified with a disability. The 13 dependent variables include (a) the percentage of third grade students meeting or exceeding standards on the reading section of the CRCT, (b) the percentage of third grade students meeting or exceeding standards on the English/language arts section of the CRCT, (c) the percentage of third grade students meeting or exceeding standards on the

mathematics section of the CRCT, (d) the percentage of third grade students meeting or exceeding standards on the science section of the CRCT, (e) the percentage of third grade students meeting or exceeding standards on the social studies section of the CRCT, (f) the school index score based on the percentage of third grade students meeting or exceeding standards on all sections of the CRCT using Georgia's Education Scoreboard for third grade performance, (g) the percentage of fifth grade students meeting or exceeding standards on the reading section of the CRCT, (h) the percentage of fifth grade students meeting or exceeding standards on the English/language arts section of the CRCT, (i) the percentage of fifth grade students meeting or exceeding standards on the mathematics section of the CRCT, (j) the percentage of fifth grade students meeting or exceeding standards on the science section of the CRCT, (k) the percentage of fifth grade students meeting or exceeding standards on the social studies section of the CRCT, (l) the percentage of fifth grade students meeting or exceeding standards on the Grade 5 Writing Test, and (m) the school index score based on the percentage of fifth grade students meeting or exceeding standards on all sections of the CRCT using Georgia's Education Scoreboard for fifth grade performance.

Population

Utilizing the Georgia Department of Education's *School County by Type Report* (2009c), all 1,316 of Georgia elementary schools were first considered to be participants in the study. However, 293 schools were excluded from the study for not meeting the prekindergarten through fifth grade criteria. The exclusion resulted from the schools not having third and fifth grades to test on the CRCT, or the school's configuration incorporated grades beyond the traditional elementary school. The total population for the

study was 1,071 schools. However, the primary research for this study included 1,023 elementary schools in Georgia. 912 schools housed prekindergarten through fifth grade, and 111 schools housed kindergarten through fifth grade for the 2008-2009 school year. An additional 48 schools with a third through fifth grade configuration were used in a comparison analysis.

Instrumentation

In the state of Georgia, the CRCT is a curriculum-based assessment created to determine a student's ability to attain, learn, and achieve the objectives identified in the Georgia Performance Standards (GPS) (GaDOE, 2008b). The main goals for administering the CRCT to students in first to eighth grade are to assure all stakeholders students are learning at their grade level and as a measure of schools meeting the challenge of the No Child Left Behind Act (No Child Left Behind [NCLB], 2002) to have all students proficient in reading and mathematics by 2014 (GaDOE, 2008b). In addition, this assessment provides teachers, schools, and school systems with data that enables them to make sound instructional decisions (GaDOE, 2008a). This test is administered to students enrolled in first through eighth grades of a public school system in the spring of the school year (GaDOE, 2008a). Students are only able to take the test in the grade level they were counted for FTE (GaDOE, 2009). Criterion Referenced Competency Tests are used in both regular and special education classrooms to assess English/language arts, mathematics, reading, science, and social studies unless students are being assessed with an alternate assessment like the GAA (Georgia Alternative Assessment) (No Child Left Behind [NCLB], 2002). The two sections for third and fifth grade are approximately 45-

70 minutes in length for the English/language arts, mathematics, reading, science, and social studies test (GaDOE, 2008a).

Content validity for the CRCT was established through the test development process (GaDOE, 2008a). The Georgia Department of Education (2009b) purports the identification of a test's purpose is the first step to ascertain test validity, and the purpose of the CRCT, determined by the Georgia state legislature, is to evaluate how well students master state curriculum as expressed in the Georgia Performance Standards (GPS) (O. C.G. A. § 20-2-281). Criterion Referenced Competency Tests content validity principally relies on the test instrument and how it parallels with the assessed curriculum, and how the reports notify the stakeholder about performance (GaDOE, 2009b). The curriculum appraisal produces a test blueprint and test specifications that indicates the standards for measurement and the embodiment in the testing instrument (GaDOE, 2009b). These two documents aid in the development of the content domain specifications that identify the item design, content capacity, and cognitive difficulty (GaDOE, 2009b). The specifications are converted into the CRCT content descriptions which are made available to stakeholders (GaDOE, 2009b). Additionally, a CRCT content weight document is developed to illustrate the comparative proportion of items by domain in each content area (GaDOE, 2009b). Accepted items are placed on field tests, reexamined by educator committees, and student performance on the items is analyzed to detect possible bias among student subgroups. Items which are accepted at this stage are stored for upcoming assessments (GaDOE, 2009b).

Several reliability indices provided for the CRCT are Cronbach's alpha reliability coefficient, the standard error of measurement (SEM), and the conditional standard errors

of measurement (CSEM). Cronbach's alpha reliability coefficient (1951) was the first index used to analyze CRCT reliability (Cronbach). The second index used to articulate CRCT reliability was the standard error of measurement (SEM) (GaDOE, 2009b). The final evaluation of reliability was through the conditional standard errors of measurement (CSEM). Through statistical measures, the reliability of the CRCT has been assessed (GaDOE, 2008a). For the 2009 CRCT, the Cronbach's alpha reliability coefficients for third grade ranged from .88 for reading to .92 for mathematics; for fifth grade, the Cronbach's alpha coefficients ranged from .86 for reading to .92 for mathematics; and for all other subjects Cronbach's alpha coefficients for third and fifth grade fell within these ranges. The SEM test reliabilities for third grade ranged from 2.49 for reading to 3.36 for science, and for fifth grade the SEM coefficients ranged from 2.59 for reading to 3.37 for science, and all other subject's SEM coefficients for third and fifth grade fell within these ranges. There are two sets of CSEMs values: one for students who meet standards and one for students who exceed standards on the CRCT for third and fifth grade. The CSEMs values for third grade students who meet standards ranged from 8 for English/language arts to 11 for mathematics, and for third grade students who exceed standards ranged from 10 for English/language arts and social studies to 13 for mathematics. The CSEMs values for fifth grade students who meet standards ranged from 7 for English/language arts to 9 for mathematics, and for fifth grade students who exceed standards ranged from 10 for English/language arts and social studies to a 14 for science. All other subject's CSEMs values for third and fifth grade fell within these ranges (GaDOE, 2009b). Based on the reliabilities for the 2009 CRCT and compared to previous administrations, the reliability indices were found to be consistent and suggest

the CRCT assessments are sufficiently reliable for their intended purpose. Therefore, the 2009 CRCT reliability indicators obtained suggest scores reported to students in 2009 are predictable and provide a reliable representation of student performance.

Georgia law (O.C.G.A., Section 20-2-281) requires fifth grade students be assessed using the Grade 5 Writing Assessment (GaDOE, 2010). For the Grade 5 Writing Assessment, students were required to write in one of three genres: narrative, informational, or persuasive. The student was given two 60 minute sessions to complete his or her writing on the selected prompt (GaDOE, 2010). The student's writing was analytically assessed in four domains: ideas, organization, style, and conventions. This type of scoring provides scale scores and performance levels and was also linked to a common reporting scale (GaDOE 2009d).

The content validity for the 2009 Grade 5 Writing Assessment was established through the development process (GaDOE, 2009d). Various committees consisting of educators and content specialists developed writing prompts which were utilized to assess student writing strengths and weaknesses. Georgia educators analyzed the results of field tests for each test prompt to identify potential problems. After field testing of the prompts and once the prompts met the requirements of Georgia educators, the prompts were placed in the test bank to be utilized on future writing tests. The four domains of the writing assessment were scored using a predetermined scoring criterion.

In addition to being a valid instrument, the 2009 Grade 5 Writing Assessment was a reliable instrument (GaDOE, 2009d). In order to establish the Grade 5 Writing Test as a reliable instrument three different measures of reliability were used (GaDOE, 2009d). The first reliability measure is Cronbach's alpha with values that ranged from .89 to .92

which demonstrated reliability. The second reliability measure is the standard error of measurement (SEM) with values that ranged from 2.39 to 2.42 which verified the administration of the 2009 fifth grade writing assessments was consistent with previous administrations and was suitably reliable for the deliberate purpose. The final reliability measure test the conditional standard errors of measurement (CSEMs) had values that ranged from 7.03 to 7.56 and showed consistency with previous administrations.

Data Collection

The CRCT scores used in this study were gathered from Georgia's Education Scoreboard website (The Governor's Office of Student Achievement, 2009). Georgia's Education Scoreboard was designed by the Governor's Office of Student Achievement (GOSA) in order to offer parents, educators, business leaders, government officials, and members of the community student data. These data provided a clear and concise look at the condition of education in Georgia (The Governor's Office of Student Achievement, 2009).

The CRCT English/language arts, mathematics, reading, science, and social studies scores for third and fifth grades of each school were retrieved from Georgia's Education Scoreboard. Criterion Referenced Competency Test (CRCT) scores are reported as the percentage of students meeting or exceeding standards in English/language arts, mathematics, reading, science, social studies. Fifth grade writing scores are also reported as the percentage of students who meet or exceed standards on the Grade 5 Writing Assessment. Additionally, school demographic information including student enrollment, percentage of minority students, and percentage of economically disadvantaged students was collected from the GOSA.

Demographic information connected to principals of elementary schools in Georgia was collected from Georgia's Professional Standards Commission (GaPSC) (see Appendix A). The principals' demographic data needed for this study included race or ethnicity, gender, years of experience as an educator, and tenure. The principal's race or ethnicity was reported as white or minority. Additionally, principal gender was reported as male or female. Furthermore, the total number of years each principal has worked as a public school educator in Georgia was reported as the principal's years of experience. For the purpose of this study, the principal's length of service in his or her current position for the 2008-2009 school term was reported as tenure. As calculated by Huff (2009), principal stability is defined by the number of principals having served in each school over a ten-year period. The ten-year period included the school years from 1999-2000 until 2008-2009. This information was collected from the longitudinal data at the GaPSC.

Data Analysis

Berger (n.d.) noted "multiple regression is a flexible method of data analysis that may be appropriate whenever a quantitative variable (the dependent or criterion variable) is to be examined in relationship to any other factors (expressed as independent or predictor variables)." Therefore, the first research question was assessed using multiple regression to determine if multiple independent variables could be used to predict student achievement. The two sets of variables in the first research question include eight independent variables and 13 dependent variables. The eight independent variables included in the study are (a) principal stability, (b) principal tenure, (c) principal experience, (d) principal race or ethnicity, (e) principal gender, (f) percentage of enrolled students identified as minority, (g) percentage of enrolled students eligible for free or

reduced lunch, and (h) percentage of enrolled students identified with having a disability. The 13 dependent variables analyzed by grade level included the following: (a) the percentage of third grade students meeting or exceeding standards on reading section of the CRCT, (b) the percentage of third grade students meeting or exceeding standards on the English/language arts section of the CRCT, (c) the percentage of third grade students meeting or exceeding standards on the mathematics section of the CRCT, (d) the percentage of third grade students meeting or exceeding standards on the science section of the CRCT, (e) the percentage of third grade students meeting or exceeding standards on the social studies section of the CRCT, (f) the school index score based on the percentage of third grade students meeting or exceeding standards on all sections of the CRCT using Georgia's Education Scoreboard for third grade performance, (g) the percentage of fifth grade students meeting or exceeding standards on the English/language arts section of the CRCT, (h) the percentage of fifth grade students meeting or exceeding standards on the mathematics section of the CRCT, (i) the percentage of fifth grade students meeting or exceeding standards on the reading section of the CRCT, (j) the percentage of fifth grade students meeting or exceeding standards on the science section of the CRCT, (k) the percentage of fifth grade students meeting or exceeding standards on the social studies section of the CRCT, (l) the percentage of fifth grade students meeting or exceeding standards on the Grade 5 Writing Test, and (m) the school index score based on the percentage of fifth grade students meeting or exceeding standards on all sections of the CRCT using Georgia's Education Scoreboard for fifth grade performance.

A one-way analysis of variance (ANOVA) was used to answer the second research question. This type of analysis was used to determine if there was a significant difference between the combined levels of principal stability and levels of principal experience on measures of student achievement. Principal stability was determined by tallying the number of principals having served in each school over a ten-year period. Principal experience, the total number of years the principal has been an educator, was also collected from the Georgia Professional Standards Commission (GaPSC, 2010). Prior to performing the one-way ANOVA, principal experience and principal stability were coded to establish levels for comparison. Schools having had one to two principals in the last ten years were assigned a 1; schools having three principals were assigned a 2; schools having four or more principals were assigned a 3. Similarly, principals' experience, as coded on the CPI reports, was coded as nominal level variables. Principals with 14 or less years experience were coded as 1. Principals with 15 to 24 years experience were coded as 2. Principals with 25 or more years experience were coded as 3. A new variable was created to run the one-way ANOVA by combining the two independent variables, principal experience and principal stability, and creating nine new levels. Data regarding student achievement included the percentage of third and fifth grade students meeting or exceeding standards on the English/language arts, mathematics, reading, science, and social studies sections of the CRCT for each Georgia elementary school; third and fifth grade Georgia Education Scoreboard achievement for each elementary school; and the percentage of fifth graders meeting or exceeding standards on the Grade 5 Writing Assessment. The Welch's F Test was used to

compensate for unequal sample sizes. The Games-Howell Test was also used to compensate for unequal sample sizes as well as unequal variances.

A one-way analysis of variance (ANOVA) was used to answer the third research question. This type of analysis was used to determine if there is a significant difference between the combined levels of principal tenure and levels of principal experience on measures of student achievement. Information related to principal tenure was obtained from the Georgia Professional Standards Commission for the 2008-2009 Georgia elementary school principals and was considered to be the number of complete years the principals had served in their 2009 positions (GaPSC, 2010). Principal experience was also collected from the Georgia Professional Standards Commission (GaPSC, 2010). Prior to performing the one-way ANOVA, principal experience was coded to meet the requirements for the one-way ANOVA. Principals with 14 or less years experience were coded as 1, while principals with 15-24 years experience were coded as 2. Principals with 25 or more years experience were coded 3. Similarly, principal tenure was also coded to set up levels for comparison. Principals with one year tenure were coded 1. Principals with two to three years of tenure were coded 2, and principals with four or more years of tenure were coded 3. A new variable was created to run the one-way ANOVA by combining the two independent variables, principal experience and principal tenure, and creating nine new levels. The percentage of third and fifth grade students meeting or exceeding standards on the English/language, mathematics, reading, science, and social studies sections of the CRCT for each Georgia elementary school; third and fifth grade Georgia Education Scoreboard performance for each elementary school; and the percentage of fifth graders meeting or exceeding standards on the Grade 5 Writing

Assessment for each middle school are the dependent variables being used. The Welch's F test was used to compensate for unequal sample sizes. The Games-Howell test was also used to compensate for unequal sample sizes as well as unequal variances.

The Mann-Whitney U Test was used to answer the fourth research question. The procedure was used to determine if there was a significant difference between schools with a third through fifth grade configuration and schools with prekindergarten through fifth grade configuration on principal tenure, principal experience, and principal stability. In order to determine school configuration, information was obtained from the Georgia Department of Education's *School County by Type Report* (2009c). Information related to principal tenure and principal stability was obtained from the Georgia Professional Standards Commission for the 2008-2009 Georgia elementary schools (GaPSC, 2010). Principal tenure was considered to be the number of complete years the principals had served in their current 2009 position. Principal stability was determined by tallying the number of principals having served in each school over a ten-year period. Principal experience was the total number of years the principal has been an educator and was also collected from the Georgia Professional Standards Commission (GaPSC, 2010).

Statistical Assumptions

In order to produce reliable results when multiple regression analysis was used, confirmation of several assumptions was necessary (Tabachnick & Fidell, 2007). The initial screening of the data confirmed there was a need for the raw scale variables to be analyzed for the required assumptions using the General Linear Model (Hill & Luwicki, 2007). A screening of the data was conducted for univariate outliers, univariate normality, and univariate homoscedasticity (Tabachnick & Fidell, 2007). The data were

checked for collinearity, and the variance inflation factor (VIF) values did not exceed 10 which provided no indication of multicollinearity. No significant violations were found utilizing Mahalanobis Distance, Cook's Distance, standardized residual, and DFBETA analyses that would influence the regression model. Multivariate statistical methods were used in this study to determine the predictive relationships between educational input variables and student achievement output variables. Upon evaluating multivariate linearity and normality, neither of the assumptions was violated. The assumption for homoscedasticity was checked by a visual examination of the standardized residual plots and by the regression standardized predicted value (Field, 2009). An examination of residual plots by dependent variables showed a slight tunneling distribution indicating a potential violation of homoscedasticity.

Confirmation of several assumptions was necessary when using a one-way ANOVA. The data were first checked for outliers and missing data; no outliers were found, but there were a few missing data entries. The missing data entries were excluded from the analysis. The first assumption checked was for normality of distribution. The graphic output from normal Q-Q Plots and histograms were examined and upon visual observation a few of the graphs appeared slightly nonnormal. A check of the skewness and kurtosis values at ± 1 found all variables were normally distributed. Finally, the Kolmogorov-Smirnov test which showed the assumption for normality was fulfilled. The assumption for homogeneity of variance was checked using Levene's test ($p > .05$), and the test results were nonsignificant. The nature of the data revealed that the interval level data and the independence of observations assumptions were met.

When using the Mann-Whitney U Test to analyze nonparametric data, the following assumptions were considered. First, were the two samples under consideration random, were they independent of each other, and were the observations independent within each sample? Second, were the observations ordinal? Levene's test for equality of variances was used to check for homogeneity, and it was found that the variances were equal for both samples. All assumptions for using the Mann-Whitney U Test were met.

Summary

An ex post facto research design was utilized for this study as it allowed for the use of data collected from the Georgia Professional Standards Commission regarding the 2009 Georgia elementary school principals (GaPSC, 2010) and the 2009 student achievement data from the Governor's Office of Student Achievement (GOSA, 2010). Data collected on the 1,023 Georgia elementary schools was used in the study. The data pertained to principal characteristics, student demographics, and student achievement. An additional 48 schools housing third through fifth grades were used in a comparison analysis, and the data pertaining to principal experience, principal stability, and principal tenure were collected. The school achievement data were confined to third and fifth grade CRCT scores for reading, English/language arts, mathematics, science, social studies, and fifth grade writing assessment. Additionally, data were collected from the Georgia Education Scoreboard on the percentage of third and fifth grade students who met or exceeded standards on all sections of the CRCT.

Data analysis included the use of multiple regression analysis to answer question 1 in order to determine if selected independent variables could predict the percentage of students within a school meeting or exceeding standards on the CRCT. A one-way

analysis of variance (ANOVA) was used to answer question 2 to determine if there was a significant difference between the combined levels of principal stability and levels of principal experience on measures of student achievement. A one-way analysis of variance (ANOVA) was used to answer question 3 to determine if there was a significant difference between the combined levels of principal tenure and levels of principal experience on measures of student achievement. For question 4, the Mann-Whitney U Test was used to determine if there was a significant difference by school configuration on principal experience, principal stability, and principal tenure. The statistical assumptions were addressed and discussed for each statistical analysis.

Chapter IV

RESULTS

The purpose of this study was to determine if the characteristics of either the school principal or the school's student population predict student achievement. Do factors such as principal stability, principal tenure, and principal experience of an elementary school principal make a significant difference in student achievement of third and fifth grade students on the third and fifth grade CRCT and the Grade 5 Writing Assessment, and is there a significant difference in the principal's tenure (length of service at current school), experience (total years of educational service), and principal stability (number of principals at the school during the ten-year period of the study) by school configuration?

The following research questions were addressed in the study.

Research question 1. Does principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, percentage of minority students, percentage of economically disadvantaged students, or percentage of students identified with a disability predict student achievement as measured by Georgia's third and fifth grade CRCT scores, fifth grade writing scores, and the school index score obtained from the Georgia Education Scoreboard?

Research Question 2. Is there a significant difference between levels of principal stability and levels of principal experience on student achievement in Georgia's elementary

schools as measured by Georgia's third and fifth grade CRCT scores, fifth grade writing scores, and school index score obtained from the Georgia Education Scoreboard?

Research Question 3. Is there a significant difference between levels of principal tenure and levels of principal experience on student achievement in Georgia's elementary schools as measured by Georgia's third and fifth grade CRCT scores, fifth grade writing scores, and school index score obtained from the Georgia Education Scoreboard?

Research Question 4. Is there a significant difference in principal stability, principal tenure, and principal experience by school configuration (prekindergarten through fifth and third through fifth grade)?

The research reported in this chapter examined if student achievement as measured by the percent of Georgia elementary school students meeting or exceeding standards on each section of the CRCT and the Grade 5 Writing Assessment could be predicted based on principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, percentage of minority students, percentage of economically disadvantaged students, and percentage of students identified with a disability. This chapter contains a description of the quantitative data analysis along with the results that were used to answer the four research questions listed above. Pearson correlation and multiple regression were employed to answer research question one. Research question two and research question three were answered by conducting a one-way ANOVA. Research question four was answered by using the Mann-Whitney U Test.

Descriptive Statistics

Descriptive statistics relating to principal factors including tenure, experience, race, and gender as well as school level variables from 1,023 Georgia elementary schools was collected. A majority of Georgia elementary schools principals were female in 2008 (n = 743 or 72.6%) and were coded as white (n = 660 or 64.5%). Descriptive statistics revealed the mean tenure of Georgia elementary school principals over a ten-year period was 3.56 years with a stability ranging from one to seven principals for the ten years of the study. CPI reports revealed the mean experience for the 2009 Georgia elementary schools principals was 22.58 years (see Table1).

Table 1
Descriptive Statistics for Independent Variables Related to Principals and Students

	n	M	SD	Skewness	Kurtosis
Principal Tenure	1,023	3.56	3.10	1.00	0.36
Principal Stability	1,023	2.80	1.19	0.46	-0.05
Principal Experience	1,023	22.58	7.54	0.22	-0.56
Percentage SWD	1,023	10.12	3.31	0.54	0.62
Percentage EconDis Students	1,023	62.90	25.81	-0.51	-0.67
Percentage Minority Students	1,023	39.75	32.58	0.56	-1.07

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis Students = percentage of enrolled students eligible for free or reduced meals.

Descriptive statistics analysis relating to school level factors as listed in Table 1 indicated the mean school percentage of students identified as minority was 39.75%, the mean school percentage of students identified as having a disability was 10.12%, and the

mean school percentage of students identified as economically disadvantaged was 62.90% . The skewness and kurtosis values fall within the ± 1 range indicating variables are normally distributed.

Correlations Among Independent Variables

The Pearson product-moment correlation was used to determine if correlations among the independent variables were present: principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, percentage of students identified with a disability, percentage of economically disadvantaged students, and percentage of minority students. Table 2 presents the matrix of Pearson correlation coefficients among the independent variables. Pearson product-moment correlations revealed several statistically significant relationships among the independent variables. However, correlations with a medium effect size ($r > 0.30$) and a large size effect ($r > 0.50$) were regarded as having practical significance and are presented (Cohen, 1988). Several statistically significant correlations were revealed among independent variables; however, most correlations did not attain the level of practical significance. Principal stability and principal tenure were found to be negatively correlated, $r(1021) = -.41$, $p < .01$, indicating elementary school principals with longer tenure led schools with less principal turnover. Principal experience was found to be positively correlated to principal tenure, $r(1021) = .38$, $p < .01$, signifying elementary principals with longer tenure commonly had more total public education experience.

Principal race or ethnicity negatively correlated to the percentage of minority students, $r(1021) = -.60$, $p < .01$, indicating minority principals were more likely to lead schools with higher percentages of minority students. Principal race or ethnicity also

positively correlated to percent of students with disabilities $r(1021) = .43$, $p < .01$, indicating minority principals were more likely to lead schools with higher percentages of students with disabilities. The percentage of minority students was found to be positively correlated to the percentage of economically disadvantaged students $r(1021) = .63$, $p < .01$, indicating schools with a higher percentage of economically disadvantaged students tend to have a higher percentage of minority students (see Table 2).

Table 2
Pearson Correlations Matrix Among Principal and Student Variables

	Principal Tenure	Principal Stability	Principal Experience	Principal Gender	Principal Race or Ethnicity	Percentage SWD	Percentage EconDis
Principal Tenure							
Principal Stability	-0.41**						
Principal Experience	0.38**	-0.19**					
Principal Gender	-0.05	0.02	0.13**				
Principal Race or Ethnicity	0.004	-0.01	-0.07**	-0.07**			
Percentage SWD	-0.01	-0.02*	0.03	0.000	0.21**		
Percentage EconDis	-0.001	0.12**	0.01	0.01	-0.43**	-0.16**	
Percentage Minority	0.02	0.05	-0.01**	-0.07**	-0.60**	-0.21**	0.63**

Note. Percentage Minority Students = percentage of enrolled students identified by race/ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis Students = percentage of enrolled students eligible for free or reduced meals. **$p < .01$. *$p < .05$.

Results by Question

Research question 1. Does principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, percentage of minority students, percentage of economically disadvantaged students, or percentage of students identified with a disability predict student achievement as measured by Georgia's third and fifth grade CRCT scores, fifth grade writing scores, and the school index score obtained from the Georgia Education Scoreboard?

Research question 1 was answered by using multiple regression to determine if student achievement could be predicted based on principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, percentage of minority students, percentage of economically disadvantaged students, and percentage of students identified with a disability. The technique allows the simultaneous testing of multiple independent variables on a single dependent variable. The dependent variables included the percentage of students meeting or exceeding standards on the reading, English/language arts, mathematics, science, and social studies sections of the CRCT in third and fifth grades; the percentage of students meeting or exceeding standards on all sections of the CRCT as reported on the Georgia Education Scoreboard; and the percentage of students meeting or exceeding the standards on the Grade 5 Writing Assessment. This method was repeated six times for third grade and seven times for fifth grade to determine if third and fifth grade student achievement could be predicted based on the multiple independent variables. A modified Bonferroni procedure was employed to maintain the overall error rate and reduce the likelihood of committing a Type I error.

Standard multiple regression was utilized to determine if third grade CRCT reading achievement could be predicted based on principal experience, principal tenure, principal stability, principal gender, principal race or ethnicity, the percentage of minority students, the percentage of economically disadvantaged students, and the percentage of students identified with a disability. The regression model significantly predicted third grade reading achievement accounting for 51.3% of the variance in third grade reading achievement on the CRCT, $R^2 = .51$, $R^2_{adj} = .51$, $F(8, 1014) = 133.56$, $p < .001$. The percentage of minority students ($B = -.05$, $t = -5.41$, $p < .001$) and the percentage of economically disadvantaged students ($B = -0.21$, $t = -20.26$, $p < .001$) contributed significantly to the third grade reading regression model (see Table 3). Factors related to principal tenure, principal experience, principal stability, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability.

Table 3
Summary of Regression Analysis for Variables Predicting Third Grade Reading Achievement

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.10	.03	1.27	.20	.04	.04
Principal Stability	-.23	-.3	-1.26	.21	-.12	-.04
Principal Experience	-.02	-.02	-.76	.45	-.004	-.02
Principal Gender	.04	.002	.10	.92	-.01	.03
Principal Race or Ethnicity	-.22	-.01	-.42	.67	-.37	-.01
Percentage SWD	-.02	-.01	-.32	.75	.13	-.01
Percentage EconDis	-.21	-.58	-20.26	.000*	-.70	-.54
Percentage Minority	-.05	-.20	-5.41	.000*	-.55	-.17

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
*$p < .001$.

Standard multiple regression was utilized to determine if third grade CRCT English/language arts achievement could be predicted based on principal experience, principal tenure, principal stability, principal gender, principal race or ethnicity, the percentage of minority students, the percentage of economically disadvantaged students, and the percentage of students identified with a disability. The regression model significantly predicted third grade English/language arts achievement accounting for 47.8% of the variance in third grade English/language arts achievement on the CRCT, $R^2 = .48$, $R^2_{adj} = .47$, $F(8, 1014) = 116.02$, $p < .001$. The percentage of minority students ($B = -.04$, $t = -4.66$, $p < .001$) and the percentage of economically disadvantaged students (B

= -.21, t = -19.46, $p < .001$) contributed significantly to the third grade English/language arts regression model (see Table 4). Factors related to principal tenure, principal experience, principal stability, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability.

Table 4
Summary of Regression Analysis for Variables Predicting Third Grade English/Language Arts Achievement

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.15	.05	1.91	.06	.05	.06
Principal Stability	-.14	-.02	-.70	.48	-.12	-.02
Principal Experience	-.02	-.15	-.60	.55	.001	-.02
Principal Gender	-.24	-.01	-.51	.61	-.02	-.02
Principal Race or Ethnicity	.11	.01	.20	.84	-0.40	.06
Percentage SWD	.01	.004	.19	.85	.13	.06
Percentage EconDis	-.21	-.58	-19.49	.000*	-.68	-.52
Percentage Minority	-.04	-.16	-4.66	.000*	-.52	-.15

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
*$p < 0.001$.

Standard multiple regression was utilized to determine if third grade CRCT mathematics achievement could be predicted based on principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, the percentage of minority students, the percentage of economically disadvantaged students, and the percentage of students identified with a disability. The regression model significantly

predicted third grade mathematics achievement accounting for 54.2% of the variance in third grade mathematics achievement on the CRCT, $R^2 = .54$, $R^2_{adj} = .54$, $F(8, 1014) = 150.07$, $p < .00$. The percentage of minority students ($B = -.11$, $t = -8.03$, $p < .001$) and the percentage of economically disadvantaged students ($B = -.29$, $t = -19.31$, $p < .001$) contributed significantly to the third grade mathematics regression model (see Table 5). Factors related to principal tenure, principal experience, principal stability, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability.

Table 5
Summary of Regression Analysis for Variables Predicting Third Grade Mathematics Achievement

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.31	.07	2.85	.01	.06	.09
Principal Stability	-.38	-.03	-1.40	.16	-.13	-.04
Principal Experience	-.01	-.06	-2.36	.02	-.03	-.07
Principal Gender	-.38	-.01	-.58	.56	-.04	-.02
Principal Race or Ethnicity	-.16	-.01	-.21	.84	-.39	-.01
Percentage SWD	-.02	-.004	-.20	.84	.14	-.01
Percentage EconDis	-.29	-.54	-19.33	.000*	-.71	-.52
Percentage Minority	-.10	-0.25	-8.03	.000*	-.60	-.24

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
**p <.001.*

Standard multiple regression was utilized to determine if third grade CRCT science achievement could be predicted based on principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, the percentage of minority students, the percentage of economically disadvantaged students, and the percentage of students identified with a disability. The regression model significantly predicted third grade science achievement accounting for 59.7% of the variance in third grade science achievement on the CRCT, $R^2 = .60$, $R^2_{adj} = .59$, $F(8, 1014) = 188.08$, $p < .001$. The percentage of minority students ($B = -0.11$, $t = -8.83$, $p < .001$), and the

percentage of economically disadvantaged students (B = -0.30, t = -21.23, p < .001) contributed significantly to the third grade science regression model (see Table 6). Factors related to principal tenure, principal stability, principal experience, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability.

Table 6
Summary of Regression Analysis for Variables Predicting Third Grade Science Achievement

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.16	.04	1.55	.12	.04	.05
Principal Stability	-.47	-.04	-1.76	.08	-.13	-.06
Principal Experience	-.06	-.03	-1.45	.15	-.01	-.05
Principal Gender	-.16	-.01	-.25	.80	-.03	-.01
Principal Race or Ethnicity	-.87	-.03	-1.18	.24	-.43	-.04
Percentage SWD	.06	.01	.68	.50	.17	.02
Percentage EconDis	-.30	-.56	-21.23	.000*	-.74	-.56
Percentage Minority	-.11	-.26	-8.83	.000*	-.63	-.27

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
** p < .001.*

Standard multiple regression was utilized to determine if third grade CRCT social studies achievement could be predicted based on principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, the percentage of minority students, the percentage of economically disadvantaged students, and the

percentage of students identified with a disability. The regression model significantly predicted third grade social studies achievement accounting for 55.0% of the variance in third grade social studies achievement on the CRCT, $R^2 = .55$, $R^2_{adj} = .55$, $F(8, 1014) = 155.11$ $p < .001$. The percentage of minority students ($B = -.06$, $t = -4.15$ $p < .001$) and the percentage of economically disadvantaged students ($B = -.38$, $t = -23.20$, $p < .001$) contributed significantly to the third grade social studies regression model (see Table 7). Factors related to principal tenure, principal stability, principal experience, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability.

Table 7
Summary of Regression Analysis for Variables Predicting Third Grade Social Studies Achievement

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.12	.03	1.01	.31	-.13	.03
Principal Stability	-.51	-.04	-1.71	.09	.04	-.05
Principal Experience	-.03	-.01	-.53	0.59	-.001	-.02
Principal Gender	-.14	-.004	-.19	.85	-.01	-.01
Principal Race or Ethnicity	-.54	-.02	-.64	.52	-.37	-.02
Percentage SWD	-.07	-.02	-.73	.46	.12	-.02
Percentage EconDis	-.38	-.64	-23.20	.000*	-.73	-.60
Percentage Minority	-.06	-.13	-4.15	.000*	-.54	-.13

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
**p < .001.*

Standard multiple regression was utilized to determine if the percentage of third grade students meeting or exceeding standards on all sections of the CRCT could be predicted based principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, the percentage of minority students, the percentage of economically disadvantaged students, and the percentage of students identified with a disability. The regression model significantly predicted the percentage of third grade students meeting or exceeding standards on all sections of the CRCT accounting for 64.1% of the variance in third grade achievement on the Georgia Education Scoreboard, $R^2 = .64$, $R^2_{adj} = .64$, $F(8, 1014) = 226.03$, $p < .001$. The percentage of minority students

(B = -.09, t = -5.90 p < .001) and the percentage of economically disadvantaged students (B = -.47, t = -27.47, p < .001) contributed significantly to the percentage of third grade students meeting or exceeding standards on all section of the CRCT regression model (see Table 8). Factors related to principal tenure, principal stability, principal experience, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability.

Table 8
Summary of Regression Analysis for Variables Predicting Third Grade Percentage of Students Meeting or Exceeding on all Sections of the CRCT

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.30	.05	2.35	.02	.06	.07
Principal Stability	-.63	-.04	-2.01	.05	-.15	-.10
Principal Experience	-.06	-.02	-1.14	.25	-.01	-.04
Principal Gender	-.81	-.02	-1.05	.29	-.03	-.03
Principal Race or Ethnicity	-.01	-.003	-.11	.91	-.39	-.004
Percentage SWD	-.07	-.01	-.70	.49	.13	-.02
Percentage EconDis	-.47	-.68	-27.47	.000*	-.79	-.65
Percentage Minority	-.09	-.16	-5.90	.000*	-.60	-.18

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
*p < .001.

Standard multiple regression was utilized to determine if fifth grade CRCT reading achievement could be predicted based on principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, the percentage of

minority students, the percentage of economically disadvantaged students, and the percentage of students identified with a disability. The regression model significantly predicted fifth grade reading achievement accounting for 49.3% of the variance in third grade reading achievement on the CRCT, $R^2 = .49$, $R^2_{adj} = .49$, $F(8, 1014) = 123.07$, $p < .001$. The percentage of minority students ($B = -.04$, $t = -5.11$, $p < .001$) and the percentage of economically disadvantaged students ($B = -.20$, $t = -20.19$, $p < .001$) contributed significantly to the fifth grade reading regression model (see Table 9). Factors related to principal tenure, principal stability, principal experience, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability.

Table 9
Summary of Regression Analysis for Variables Predicting Fifth Grade Reading Achievement

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.12	.04	1.57	.12	.02	.05
Principal Stability	.15	.02	.84	.40	-.07	.03
Principal Experience	-.03	-.03	-1.17	.24	-.02	-.04
Principal Gender	.19	.01	.42	.68	-.001	.01
Principal Race or Ethnicity	.30	.02	.58	.56	-.34	.02
Percentage SWD	-.004	-.002	-.07	.95	.13	-.002
Percentage EconDis	-.20	-.59	-20.19	.000*	-.69	-.54
Percentage Minority	-.04	-.17	-5.11	.000*	-.53	-.16

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
*$p < .001$.

Standard multiple regression was utilized to determine if fifth grade CRCT English/language arts achievement could be predicted based on principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, the percentage of minority students, the percentage of economically disadvantaged students, and the percentage of students identified with a disability. The regression model significantly predicted fifth grade English language arts achievement accounting for 37.4% of the variance in third grade reading achievement on the CRCT, $R^2 = .37$, $R^2_{adj} = .37$, $F(8, 1014) = 75.77$, $p < .001$. The percentage of minority students ($B = -.03$, $t =$

-3.47, $p < .001$) and the percentage of economically disadvantaged students ($B = -0.13$, $t = -16.28$, $p < .001$) contributed significantly to the fifth grade English language arts regression model (see Table 10). Factors related to principal tenure, principal stability, principal experience, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability.

Table 10
Summary of Regression Analysis for Variables Predicting Fifth Grade English/Language Arts Achievement

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.14	.07	2.30	.02	.04	.07
Principal Stability	.10	.02	.64	.52	-.07	.02
Principal Experience	-.05	-.06	-1.99	.05	-.04	-.06
Principal Gender	-.23	-.02	-.61	.54	-.03	-.02
Principal Race or Ethnicity	.36	.03	.84	.40	-.28	.03
Percentage SWD	.03	.01	.55	.58	.12	.02
Percentage EconDis	-.13	-.53	-16.28	.000*	-.60	-.46
Percentage Minority	-.03	-.13	-3.47	.001*	-.45	-.11

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
*$p < .001$.

Standard multiple regression was utilized to determine if fifth grade CRCT mathematics achievement could be predicted based on principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, the percentage of minority students, the percentage of economically disadvantaged students, and the

percentage of students identified with a disability. The regression model significantly predicted fifth grade mathematics achievement accounting for 43.3% of the variance in fifth grade mathematics achievement on the CRCT, $R^2 = .43$, $R^2_{adj} = .43$, $F(8, 1014) = 96.98$, $p < .001$. The percentage of minority students ($B = -.07$, $t = -5.10$, $p < .001$) and the percentage of economically disadvantaged students ($B = -.29$, $t = -17.94$, $p < .001$) contributed significantly to the fifth grade mathematics regression model (see Table 11). Factors related to principal tenure, principal stability, principal experience, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability.

Table 11
Summary of Regression Analysis for Variables Predicting Fifth Grade Mathematics Achievement

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.34	.08	2.87	.004	.06	.09
Principal Stability	.39	.04	1.32	.19	-.08	.04
Principal Experience	.01	.01	.20	.84	.02	.01
Principal Gender	.79	.03	1.10	.28	.02	-.03
Principal Race or Ethnicity	1.37	-05	1.63	.10	-.30	.05
Percentage SWD	-.02	-.01	-.24	.81	.11	-.01
Percentage EconDis	-.29	-.56	-17.94	.000*	-.64	-.49
Percentage Minority	-.07	-.18	-5.1	.000*	-.50	-.16

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
*$p < .001$.

Standard multiple regression was utilized to determine if fifth grade CRCT science achievement could be predicted based on principal tenure, principal stability, principal gender, principal experience, principal race or ethnicity, the percentage of minority students, the percentage of economically disadvantaged students, and the percentage of students identified with a disability. The regression model significantly predicted fifth grade science achievement accounting for 53.2% of the variance in fifth grade science achievement on the CRCT, $R^2 = .53$, $R^2_{adj} = .53$, $F(8, 1014) = 144.23$, $p < .001$. The percentage of minority students ($B = -.08$, $t = -5.41$, $p < .001$) and the percentage of economically disadvantaged students ($B = -.38$, $t = -21.55$, $p < .001$)

contributed significantly to the fifth grade science regression model (see Table 12). Factors related to principal tenure, principal stability, principal experience, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability.

Table 12
Summary of Regression Analysis for Variables Predicting Fifth Grade Science Achievement

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.24	.05	1.81	.07	.04	.06
Principal Stability	-.09	-.01	-.28	.78	-.10	-.01
Principal Experience	-.06	-.03	-1.17	.24	-.02	- .04
Principal Gender	-.79	-.02	-1.00	.32	-.03	-.03
Principal Race or Ethnicity	.35	.01	.38	.71	-.36	.01
Percentage SWD	.09	.02	.83	.41	.15	.03
Percentage EconDis	-.38	-.61	-21.55	.000*	-.72	-.56
Percentage Minority	-.08	-.17	-5.41	.000*	-.55	-.17

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
*$p < .001$.

Standard multiple regression was utilized to determine if fifth grade CRCT social studies achievement could be predicted based on principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, the percentage of minority students, the percentage of economically disadvantaged students, and the percentage of students identified with a disability. The regression model significantly

predicted fifth grade social studies achievement accounting for 56.8% of the variance in fifth grade social studies achievement on the CRCT, $R^2 = .57$, $R^2_{adj} = .57$, $F(8, 1014) = 166.93$, $p < .001$. The percentage of minority students ($B = -.06$, $t = -3.72$, $p < .001$) and the percentage of economically disadvantaged students ($B = -.46$, $t = -24.99$, $p < .001$) contributed significantly to the fifth grade science regression model (see Table 13). Factors related to principal tenure, principal stability principal experience, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability.

Table 13
Summary of Regression Analysis for Variables Predicting Fifth Grade Social Studies Achievement

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.27	.05	1.99	.05	.04	.06
Principal Stability	.05	.003	.14	.89	-.10	.004
Principal Experience	-.05	-.02	-.90	.37	-.01	-.03
Principal Gender	-.82	-.02	-.99	.32	-.03	-.03
Principal Race or Ethnicity	-.13	-.004	-.14	.89	-.36	-.004
Percentage SWD	-.09	-.02	-.77	.44	.12	-.02
Percentage EconDis	-.46	-.68	-24.99	.000*	-.75	-.62
Percentage Minority	-.06	-.11	-3.72	.000*	-.54	-.12

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
**p < .001.*

Standard multiple regression was utilized to determine if the percentage of fifth grade students meeting or exceeding standards on all sections of the CRCT could be predicted based on principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, the percentage of minority students, the percentage of economically disadvantaged students, and the percentage of students identified with a disability. The regression model significantly predicted the percentage of fifth grade students meeting or exceeding standards on all sections of the CRCT accounting for 61.8% of the variance in fifth grade achievement on the Georgia Education Scoreboard, $R^2 = .62$, $R^2_{adj} = 62$, $F(8, 1014) = 204.90$, $p < .001$. The percentage of minority students

(B = -.08, t = -4.88, p < .001) and the percentage of economically disadvantaged students (B = -.51, t = -27.44, p < .001) contributed significantly to the percentage of fifth grade students meeting or exceeding standards on all sections of the CRCT regression model (see Table 14). Factors related to principal tenure, principal experience, principal stability, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability.

Table 14
Summary of Regression Analysis for Variables Predicting Fifth Grade Percentage of Students Meeting or Exceeding on all Sections of the CRCT

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.34	.06	2.4	.02	.05	.08
Principal Stability	-.17	-.01	-.51	.61	-.12	-.02
Principal Experience	-.04	-.02	-.80	.42	-.004	-.03
Principal Gender	-.62	-.02	-.73	.46	-.02	-.02
Principal Race or Ethnicity	.82	.02	.84	.40	-.36	.26
Percentage SWD	-.09	-.02	-.78	.44	.12	-.24
Percentage EconDis	-.51	-.70	-27.44	.000*	-.78	-.65
Percentage Minority	-.08	-.14	-4.88	.000*	-.57	-.15

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
*p < .001.

Standard multiple regression was utilized to determine if achievement on the Grade 5 Writing Assessment could be predicted based on principal experience, principal tenure, principal stability, principal gender, principal race or ethnicity, the percentage of

minority students, the percentage of economically disadvantaged students, and the percentage of students identified with a disability. The regression model significantly predicted fifth grade writing achievement accounting for 40.6% of the variance in fifth grade writing achievement $R^2 = .41$, $R^2_{adj} = .40$, $F(8, 1014) = 86.70$, $p < .001$. The percentage of economically disadvantaged students ($B = -.32$, $t = -19.32$, $p < .001$) contributed significantly to the fifth grade writing regression model (see Table 15). Factors related to principal tenure, principal experience, principal stability, principal gender, and principal race or ethnicity did not contribute to the model nor did the percentage of students identified with a disability or percentage of minority students.

Table 15
Summary of Regression Analysis for Variables Predicting Grade Five Writing Assessment Achievement

	B	β	*t*	*p*	Bivariate *r*	Partial *r*
Principal Tenure	.32	.07	2.59	.01	.06	.08
Principal Stability	-.10	-.01	-.34	.74	-.11	-.01
Principal Experience	-08	-.05	-1.76	.08	-.02	-.06
Principal Gender	1.92	.06	2.61	.01	.06	.08
Principal Race or Ethnicity	1.67	.06	1.95	.05	-.23	.06
Percentage SWD	-.14	-.04	-1.39	.17	.07	-.04
Percentage EconDis	-.32	-.61	-19.32	.000*	-.63	-.52
Percentage Minority	-03	-.07	-1.92	.06	-.41	-.06

Note. Percentage Minority Students = percentage of enrolled students identified by race or ethnicity other than white; Percentage SWD = percentage of enrolled students identified as having a disability; Percentage EconDis = percentage of enrolled students eligible for free or reduced meals.
**p < .001.*

Research Question 2. Is there a significant difference between levels of principal stability and levels of principal experience on student achievement in Georgia's elementary schools as measured by Georgia's third and fifth grade CRCT scores, fifth grade writing scores, and school index score obtained from the Georgia Education Scoreboard?

Research question two was answered using a one-way ANOVA, and the purpose was to determine if there was a significant difference in student achievement based on the combined levels of principal experience and levels of principal stability. Third grade reading scores for Georgia elementary schools were analyzed to determine if student achievement varied based on combined levels of principal experience and levels of

principal stability. A modified Bonferroni procedure was employed to maintain the overall error rate and reduce the likelihood of committing a Type I error.

The descriptive statistics for combined levels of principal experience and levels of principal stability for third grade reading CRCT scores are (n = 1,023, M = 87.09, SD = 9.06, 95% Cl [86.53, 97.64]). Regardless of the principals' years of experience, the fewer number of principals during the ten-year period resulted in higher achievement in reading. Although, level 4 had the highest mean achievement score, it was not much different than level 7, and both levels had one to two principals. Level 8 had three principals, more experience, and a higher mean achievement score than levels 5 and 2 which each had three principals and fewer years of principal experience. Levels 3, 5, 6, and 9 had averages below the collective mean. These school levels had a commonality of higher turnover rates for principals (three or more principals in the last decade) than the schools with averages above the common mean such as schools at level 4 (principal stability of one to two principals in the last decade) (see Table 16).

Table 16
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Stability for Third Grade CRCT Reading Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	87.62	9.14	84.97	90.27
2	59	87.09	10.14	84.45	89.73
3	48	86.77	8.90	84.18	89.35
4	187	88.08	8.20	86.90	89.26
5	143	86.42	9.00	84.93	87.90
6	133	85.98	8.08	84.60	87.37
7	210	87.95	8.85	86.75	89.16
8	108	87.26	9.06	85.54	88.99
9	87	85.29	11.61	82.82	87.78
Total	1,023	87.09	9.06	86.53	87.64

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on third grade reading CRCT scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal stability on third grade reading CRCT scores $F(8, 297.82) = 1.27$, $p = .26$, partial $\eta 2 = .01$.

Third grade English/language arts scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal stability. A one-way analysis of variance was conducted to investigate whether third grade English/language arts achievement differed based on the combined levels of principal experience and levels of principal stability.

The descriptive statistics for combined levels of principal experience and levels of principal stability for third grade English/language arts CRCT scores are (n = 1,023, M = 85.69, SD = 9.28, 95% Cl [85.12, 86.26]). Regardless of the principals' years of experience, the levels with less number of principals during the ten-year period resulted in higher achievement in English/language arts. Level 7 had the highest English/language arts average and had the fewest number of principals with most years of experience. Levels 3, 6, and 9 had four or more principals during the ten-year period and had the lowest English/language arts scores with averages below the collective mean (see Table 17).

Table 17
Descriptive Statistics for Combined levels of Principal Experience and Levels of Principal Stability for Third Grade English/Language Arts CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	86.06	9.00	83.44	88.67
2	59	86.10	9.61	83.60	88.61
3	48	85.22	9.66	82.41	88.02
4	187	86.28	8.40	85.06	87.49
5	143	85.34	8.92	83.87	86.81
6	133	84.51	8.66	83.02	85.99
7	210	86.82	9.16	85.57	88.06
8	108	85.78	9.17	84.03	87.53
9	87	83.77	12.19	81.17	86.37
Total	1,023	85.69	9.28	85.12	86.26

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on third grade English/language arts CRCT scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between

combined levels of principal experience and levels of principal stability on third grade English/language arts CRCT scores $F(8, 298.14) = 1.13$, $p = .34$, partial $\eta^2 = .01$.

Third grade mathematics scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal stability. A one-way analysis of variance was conducted to investigate whether third grade mathematics achievement differed based on the combined levels of principal experience and levels of principal stability.

The descriptive statistics for combined levels of principal experience and levels of principal stability for third grade mathematics CRCT scores are (n = 1,023, M = 76.54, SD = 13.64, 95% Cl [75.71, 77.38]). Regardless of the principals' years of experience, the levels with less number of principals during the ten-year period resulted in higher achievement in mathematics. Levels 1, 2, 4, and 7 all had three or fewer principals in the last ten years and mathematics achievement scores above the mean average. Levels 8 and 9 with three or more principals and more principal experience had the lowest achievement scores for the third grade mathematics test (see Table 18).

Table 18
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Stability for Third Grade Mathematics CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	76.99	12.61	73.32	80.65
2	59	77.16	14.57	73.36	80.96
3	48	75.33	13.79	71.33	79.34
4	187	78.67	12.90	76.81	80.53
5	143	75.35	13.34	73.15	77.56
6	133	75.71	11.43	73.75	77.67
7	210	78.07	13.80	76.19	79.95
8	108	74.40	14.32	71.67	77.13
9	87	74.18	16.57	70.65	77.71
Total	1,023	76.54	13.64	75.71	77.38

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on third grade mathematics CRCT scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between

combined levels of principal experience and levels of principal stability on third grade mathematics CRCT scores $F(8, 299.16) = 1.75$, $p = .09$, partial $\eta^2 = .01$.

Third grade science scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal stability. A one-way analysis of variance was conducted to investigate whether third grade science achievement differed based on the combined levels of principal experience and levels of principal stability.

The descriptive statistics for combined levels of principal experience and levels of principal stability for third grade science CRCT scores are (n = 1,023, M = 78.38, SD = 13.90, 95% Cl [77.52, 79.23]). Levels 1, 4, and 7 had the lowest principal turnover rate but had varied principal experience rates that scored above the collective mean on the third grade science CRCT. Level 9 with the highest experience and least stability scored the lowest of all levels (see Table 19).

Table 19
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Stability for Third Grade Science CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	79.48	12.30	75.90	83.05
2	59	77.87	15.43	73.85	81.90
3	48	77.69	13.26	73.84	81.54
4	187	80.10	12.48	78.30	81.91
5	143	77.31	13.69	75.04	79.60
6	133	77.06	12.80	74.86	79.25
7	210	80.26	13.50	78.42	82.09
8	108	77.33	15.15	74.44	80.22
9	87	75.30	17.26	71.62	78.98
Total	1,023	78.38	13.90	77.52	79.23

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on third grade science CRCT scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal stability on third grade science CRCT scores $F(8, 299.11) = 1.67$, $p = .10$, partial $\eta^2 = .01$.

Third grade social studies scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal stability. A one-way analysis of variance was conducted to investigate whether third grade social studies achievement differed based on the combined levels of principal experience and levels of principal stability.

The descriptive statistics for combined levels of principal experience and levels of principal stability for third grade social studies CRCT scores are (n = 1,023, M = 74.65, SD = 15.20, 95% Cl [73.72, 75.59]). The three levels with the greatest stability (1, 4, and 7) scored higher on the social studies portion of the third grade CRCT regardless of experience level. Levels 3, 6, and 9 with the highest turnover rate each had lower achievement scores and higher principal turnover rates (see Table 20).

Table 20
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Stability for Third Grade Social Studies CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	74.88	14.39	70.71	79.06
2	59	74.16	16.98	69.73	78.58
3	48	73.11	14.38	68.93	77.28
4	187	76.60	13.78	74.61	78.59
5	143	74.11	15.71	71.51	76.71
6	133	72.75	13.51	70.44	75.07
7	210	76.52	14.51	74.54	78.49
8	108	73.53	16.91	70.31	76.76
9	87	72.23	18.12	68.37	76.09
Total	1,023	74.65	15.20	73.72	75.59

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on third grade social studies CRCT scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between

combined levels of principal experience and levels of principal stability on third grade social studies CRCT scores $F(8, 298.56) = 1.55$, $p = .14$, partial $\eta^2 = .01$.

The percentage of third grade students meeting or exceeding standards on all sections of the CRCT as reported on the Georgia Education Scoreboard for Georgia elementary school were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal stability. A one-way analysis of variance was conducted to investigate whether the percentage of third grade students meeting or exceeding standards on all sections of the CRCT differed based on the combined levels of principal experience and levels of principal stability.

The descriptive statistics for combined levels of principal experience and levels of principal stability for all sections of the third grade CRCT are (n = 1,023, M = 64.00, SD = 17.72, 95% Cl [62.91, 65.09]). On all sections of the third grade CRCT, the levels with the greater number of principals in the last decade showed a downturn in achievement scores regardless of principal experience with levels 3, 5, 6, 8 and 9 having scores below the mean. Levels 1, 4, and 7, those with the fewest number of principals but various levels of experience, showed achievement scores above the mean (see Table 21).

Table 21
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Stability for all Sections of the Third Grade CRCT

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	64.59	16.09	59.92	69.27
2	59	64.33	19.53	59.23	69.42
3	48	62.41	16.34	57.66	67.15
4	187	66.41	16.53	64.03	68.80
5	143	62.57	18.10	59.58	65.56
6	133	61.53	15.16	58.92	64.14
7	210	66.96	17.73	64.55	69.37
8	108	61.71	18.52	58.18	65.25
9	87	60.93	21.12	56.42	65.43
Total	1,023	64.00	17.72	62.91	65.09

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on all sections of the third grade CRCT. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between

combined levels of principal experience and levels of principal stability on all sections of the third grade CRCT $F(8, 299.79) = 2.24$, $p = .02$, partial $\eta^2 = .02$.

Fifth grade reading scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal stability. A one-way factorial analysis of variance was conducted to investigate whether fifth grade reading achievement differed based on the combined levels of principal experience and levels of principal stability.

The descriptive statistics for combined levels of principal experience and levels of principal stability for fifth grade reading CRCT scores are (n = 1,023, M = 87.04, SD = 8.68, 95% Cl [86.51, 87.57]). Level 1 schools showed the highest achievement scores with levels 3, 4, and 7 schools also exhibiting scores above the mean. Each of these levels, with the exception of level 3 schools had a higher principal stability rating regardless of principal experience. Levels 2, 5, 6, 8 and 9, each having three or more principals in the last ten years with various levels of principal experience, had scores below the mean (see Table 22).

Table 22
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Stability for Fifth Grade Reading CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	89.09	7.42	86.94	91.25
2	59	86.81	9.99	84.21	89.42
3	48	87.59	8.45	85.14	90.05
4	187	87.51	8.30	86.31	88.71
5	143	85.67	8.38	84.28	87.06
6	133	86.55	7.44	85.27	87.82
7	210	87.76	9.46	86.48	89.05
8	108	86.20	9.33	84.42	87.98
9	87	87.02	8.63	85.18	88.86
Total	1,023	87.04	8.68	86.51	87.57

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on fifth grade reading CRCT scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal stability on fifth grade reading CRCT scores $F(8, 301.19) = 1.36$, $p = .22$, partial $\eta^2 = .01$.

Fifth grade English/language arts scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal stability. A one-way analysis of variance was conducted to investigate whether fifth grade English/language arts achievement differed based on combined levels of principal experience and levels of principal stability.

The descriptive statistics for combined levels of principal experience and levels of principal stability for fifth grade English/language arts CRCT scores are (n = 1,023, M = 90.84, SD = 6.46, 95% Cl [90.45, 91.24]). Levels 1, 4, and 7 with various levels of principal experience, but each with two or fewer principals in the last decade were all above the mean for fifth grade English/language arts CRCT scores with level 1 scores outperforming the others. Levels 2, 3, 5, 6, 8, and 9 with three or more principals in the last ten years and various levels of experience scored below the mean with level 8 schools scoring the lowest (see Table 23).

Table 23
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Stability for Fifth Grade English/Language Arts CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	92.49	5.12	91.00	93.98
2	59	90.65	6.55	88.94	92.35
3	48	90.82	6.80	88.85	92.80
4	187	91.45	5.87	90.60	92.30
5	143	90.02	6.20	89.00	91.05
6	133	90.58	6.18	89.52	91.64
7	210	91.25	7.10	90.29	92.22
8	108	89.88	6.69	88.59	91.15
9	87	90.73	6.86	89.27	92.19
Total	1,023	90.84	6.46	90.45	91.24

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on fifth grade English/language arts CRCT scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between

combined levels of principal experience and levels of principal stability on fifth grade English/language arts CRCT scores $F(8, 301.83) = 1.57$, $p = .14$, partial $\eta^2 = .01$.

Fifth grade mathematics scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal stability. A one-way analysis of variance was conducted to investigate whether fifth grade mathematics achievement differed based on the combined levels of principal experience and principal stability.

The descriptive statistics for combined levels of principal experience and levels of principal stability for fifth grade mathematics CRCT scores are (n = 1,023, M = 78.19, SD = 13.33, 95% Cl [77.37, 79.01]). Levels 1, 4, 7 and 9 had scores above the mean on the fifth grade mathematics CRCT scores. Levels 1, 4 and 7 had various levels of principal experience, but each had two or fewer principals in the last ten years, while level 9 schools had principals with 25 years or more experience and four or more principals in the last ten years. Schools performing below the mean were those at levels 2, 3, 5, 6 and 8; each had higher turnover rates and varied levels of experience with level 3 schools scoring the lowest (see Table 24).

Table 24
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Stability for Fifth Grade Mathematics CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	80.64	11.33	77.35	83.93
2	59	77.65	15.59	73.59	81.71
3	48	75.21	15.12	70.82	79.60
4	187	78.74	12.97	76.87	80.61
5	143	76.84	13.73	74.57	79.11
6	133	77.87	12.30	75.76	79.98
7	210	80.13	13.10	78.35	81.91
8	108	75.70	13.96	73.04	78.37
9	87	78.78	12.51	76.11	81.44
Total	1,023	78.19	13.33	77.37	79.01

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on fifth grade mathematics CRCT scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between

combined levels of principal experience and levels of principal stability on fifth grade mathematics CRCT scores $F(8, 299.87) = 1.74$, $p = .09$, partial $\eta^2 = .004$.

Fifth grade science scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal stability. A one-way analysis of variance was conducted to investigate whether fifth grade science achievement differed based on the combined levels of principal experience and levels of principal stability.

The descriptive statistics for combined levels of principal experience and levels of principal stability for fifth grade science CRCT scores are (n = 1,023, M = 79.35, SD = 11.82, 95% Cl [73.28, 75.25]). Levels 1, 4, and 7 schools with varied levels of principal experience, but all with only one to two principals in the last decade scored above the mean with level 1 schools scoring the highest for the fifth grade science CRCT. Levels 2, 3, 5, 6, 8, and 9 schools with varied levels of experience and with three or more principals in the last ten years scored below the mean (see Table 25).

Table 25
Descriptive Statistics for Combined Levels of Principal Stability and Levels of Principal Experience for Fifth Grade Science CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	79.35	11.82	75.92	82.78
2	59	71.99	18.25	67.23	76.75
3	48	74.11	16.14	69.43	78.80
4	187	76.37	14.71	74.25	78.49
5	143	72.17	16.66	69.42	74.92
6	133	72.68	14.50	70.20	75.17
7	210	75.58	17.07	73.25	77.90
8	108	72.33	16.10	69.26	75.41
9	87	73.68	17.28	70.00	77.36
Total	1,023	74.27	16.07	73.28	75.25

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on fifth grade science CRCT scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal stability on fifth grade science CRCT scores (8, 302.31) = 2.48, p = .01, partial η^2 = .02.

Fifth grade social studies scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal stability. A one-way analysis of variance was conducted to investigate whether fifth grade social studies achievement differed based on the combined levels of principal experience and levels of principal stability.

The descriptive statistics for combined levels of principal experience and levels of principal stability for fifth grade social studies CRCT scores are (n = 1,023, M = 69.47, SD = 17.44, 95% Cl [68.40, 70.54]). Level 1, 4, and 7 schools scored above the mean on the fifth grade social studies CRCT. These schools have various levels of principal experience but have lower principal turnover rates. Schools at levels 2, 3, 5, 6, 8 and 9 each with varied levels of experience but with three or more principals in the last decade, all scored below the mean (see Table 26).

Table 26
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Stability for Fifth Grade Social Studies CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	73.67	14.24	69.53	77.80
2	59	67.89	19.77	62.73	73.03
3	48	68.97	15.21	64.55	73.39
4	187	72.09	16.35	69.73	74.43
5	143	67.33	18.01	64.35	70.30
6	133	68.04	16.27	65.25	70.83
7	210	71.067	18.37	68.57	73.56
8	108	66.94	16.97	63.70	70.18
9	87	67.89	19.06	63.83	71.96
Total	1,023	69.47	17.44	68.40	70.54

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on fifth grade social studies CRCT scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between

combined levels of principal experience and levels of principal stability on fifth grade social studies CRCT scores $F(8, 302.50) = 2.09$, $p = .04$, partial $\eta^2 = .02$.

The percentage of fifth grade students meeting or exceeding standards on all sections of the CRCT as reported on the Georgia Education Scoreboard for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal stability. A one-way analysis of variance was conducted to investigate whether the percentage of fifth grade students meeting or exceeding standards on all sections of the CRCT differed based on the combined levels of principal experience and levels of principal stability.

The descriptive statistics for combined levels of principal experience and levels of principal stability for all sections of the fifth grade CRCT are (n = 1,023, M = 62.60, SD = 21.68, 95% Cl [61.27, 63.93]). Levels 1, 4, 7 and 9 scored above the mean on all sections of the fifth grade CRCT. Levels 1, 4, and 7 had varied levels of experience, but each had only one or two principals in the last decade. Level 9 schools had higher principal turnover and experience than other levels. Level 2, 3, 5, 6, and 8 had higher levels of principal experience with three or more principals in the last ten years and scored below the mean on all sections of the fifth grade CRCT (see Table 27).

Table 27
Descriptive Statistics for Combined levels of Principal Experience and Levels of Principal Stability for all Sections of the Fifth Grade CRCT

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	66.98	15.43	62.49	71.46
2	59	60.69	21.84	55.00	66.38
3	48	60.28	17.80	55.11	65.45
4	187	65.36	17.36	62.85	67.86
5	143	59.98	19.67	56.73	63.24
6	133	60.03	17.12	57.09	62.96
7	210	64.25	19.84	61.55	66.95
8	108	59.31	17.95	55.89	62.74
9	87	65.15	42.18	56.16	74.14
Total	1,023	62.60	21.68	61.27	63.93

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on all sections of the fifth grade CRCT. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between

combined levels of principal experience and levels of principal stability on all sections of the fifth grade CRCT $F(8, 300.26) = 2.55$, $p = .01$, partial $\eta^2 = .02$.

Fifth grade writing scores for Georgia elementary school students were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal stability. A one-way analysis of variance was conducted to investigate whether fifth grade writing achievement differed based on the combined levels of principal experience and levels of principal stability.

The descriptive statistics for combined levels of principal experience and levels of levels of principal stability for fifth grade writing scores are (n = 1,023, M = 76.57, SD = 13.27, 95% Cl [75.76, 77.38]). Levels 1, 2, 4, 7 and 9 scored above the mean on the Fifth Grade Writing Assessment. These levels have varied principal experience and principal stability levels. Levels 3, 5, 6, and 8 scored below the mean on the Fifth Grade Writing Assessment; while they had varied levels of principal experience, each level had 3 or more principals in the last decade (see Table 28).

Table 28
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Stability for Grade 5 Writing Assessment

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	48	82.06	9.99	79.16	84.96
2	59	77.38	14.34	73.65	81.12
3	48	75.99	10.52	72.93	79.04
4	187	77.87	13.10	75.97	79.76
5	143	74.07	13.54	71.83	76.31
6	133	74.73	12.73	72.55	76.92
7	210	77.48	14.07	75.56	79.39
8	108	74.57	13.36	72.02	77.12
9	87	77.75	12.90	75.00	80.50
Total	1,023	76.57	13.27	75.76	77.38

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal stability on fifth grade writing scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal stability on fifth grade writing scores $F(8, 305.61) = 3.47$, $p = .01$, partial $\eta^2 = .01$.

Research Question 3. Is there a significant difference between levels of principal tenure and levels of principal experience on student achievement in Georgia's elementary schools as measured by Georgia's third and fifth grade CRCT scores, fifth grade writing scores, and school index score obtained from the Georgia Education Scoreboard?

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Research question three was answered using a one-way ANOVA, and the purpose was to determine if there was a significant difference in student achievement based on the combined levels of principal experience and levels of principal tenure. A modified Bonferroni procedure was employed to maintain the overall error rate and reduce the likelihood of committing a Type I error.

Georgia third grade reading CRCT scores were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way analysis of variance was conducted to investigate whether third grade reading achievement differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for third grade reading scores are (n = 1,023, M = 76.57, SD = 13.27, 95% Cl [75.76, 77.38]). Levels 2, 3, 5, and 9 had principals who had been tenured for two or more years and scored above the mean average for achievement in reading. Level 9 had the most years of experience and tenure and had the highest achievement in reading.

Level 1, 4, 6, 7, and 8 had principals with three or less years of tenure and varied levels of experience and scored below the mean (see Table 29).

Table 29
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Tenure for Third Grade Reading CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	87.06	9.23	83.98	90.14
2	71	87.09	9.30	84.89	89.29
3	47	87.32	9.89	84.42	90.23
4	79	86.40	8.39	84.53	88.28
5	169	87.51	8.39	86.23	88.78
6	215	86.74	8.55	85.60	87.90
7	28	86.85	11.79	82.28	91.43
8	103	85.51	10.99	83.36	87.66
9	274	87.87	8.71	86.83	88.90
Total	1,023	87.09	9.06	86.53	87.64

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal tenure on third grade reading scores. The Welch's F test was used to compensate for unequal

sample sizes. There was no significant difference between combined levels of principal experience and levels of principal tenure on third grade reading scores $F(8, 217.99) = 0.68$, $p = .71$, partial $\eta^2 = .01$.

Georgia third grade English/language arts CRCT scores were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way analysis of variance was conducted to investigate whether third grade English/language arts achievement differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for third grade English/language arts scores are (n = 1,023, M = 85.69, SD = 9.28, 95% Cl [85.12, 86.26]). Levels 1, 3, 5, and 9 had the highest achievement in English/language arts with varied levels of tenure and experience. Level 1 had the highest achievement with fewer years of experience and tenure than any of the other levels. Levels, 2, 4, 6, 7, and 8 had achievement scores below the mean average and had various levels of experience and tenure (see Table 30).

Table 30
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Tenure Experience for Third Grade English/ Language Arts CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	87.58	8.40	84.78	90.38
2	71	84.71	9.38	82.49	86.93
3	47	86.09	10.07	83.13	89.04
4	79	84.57	8.80	82.60	86.54
5	169	86.30	8.68	84.98	87.61
6	215	85.17	8.56	84.02	86.32
7	28	84.58	13.67	79.28	89.88
8	103	84.01	10.97	81.87	86.16
9	274	86.72	8.97	85.66	87.79
Total	1,023	85.69	9.28	85.12	86.26

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal tenure on third grade English/language arts scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal tenure on third grade English/language arts scores $F(8, 218.22) = 1.44$, $p = .18$, partial $\eta^2 = .01$.

Third grade mathematics CRCT scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way factorial analysis of variance was conducted to investigate whether third grade mathematics achievement differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for third grade mathematics scores are (n = 1,023, M = 76.54, SD = 13.64, 95% Cl [75.71, 77.38]). Level 1, 3, 5, 6, and 9 had averages above the collective mean for achievement in mathematics with varied levels of tenure and experience. Level 3 had the highest achievement average with fewer years of experience and four or more years of tenure. Levels 2, 4, 7, and 8 had achievement averages for mathematics below the mean average and principals with three or fewer years of tenure (see Table 31).

Table 31
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Tenure Experience for Third Grade Mathematics CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	76.72	14.53	71.87	81.56
2	71	74.89	13.18	71.77	78.01
3	47	78.90	13.69	74.88	82.92
4	79	73.36	13.76	70.28	76.45
5	169	77.32	12.53	75.42	79.22
6	215	77.64	12.28	75.99	79.29
7	28	74.54	20.05	66.76	82.32
8	103	73.89	15.56	70.85	76.93
9	274	77.32	13.57	75.71	78.94
Total	1,023	76.54	13.64	75.71	77.38

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal tenure on third grade mathematics scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal tenure on third grade mathematics scores $F(8, 217.76) = 1.61$, $p = .12$, partial $\eta^2 = .01$.

Third grade science CRCT scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way factorial analysis of variance was conducted to investigate whether third grade science achievement differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for third grade science scores are (n = 1,023, M = 78.38, SD = 13.90, 95% Cl [77.52, 79.23]). Levels 1, 5, and 9 had averages for achievement in science above the mean average with varied levels of principal experience and tenure. Level 1 had the highest achievement average with the least tenured and least experienced principals as compared to level 8 having the lowest achievement average, the most experienced principals and were tenured for two to three years (see Table 32).

Table 32
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Tenure Experience on Third Grade Science CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	80.41	13.22	76.00	84.82
2	71	77.39	13.16	74.28	80.51
3	47	78.05	15.20	73.59	82.52
4	79	76.44	13.09	73.50	79.37
5	169	79.95	12.45	78.06	81.84
6	215	77.83	13.33	76.04	79.62
7	28	76.84	18.48	69.67	84.01
8	103	75.74	16.62	72.49	78.98
9	274	79.58	13.72	77.95	81.21
Total	1,023	78.38	13.90	77.52	79.23

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and p levels of rincipal tenure on third grade science scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal tenure on third grade science scores $F(8, 218.68) = 1.33$, $p = .23$, partial $\eta^2 = .01$.

Third grade social studies CRCT scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way factorial analysis of variance was conducted to investigate whether third grade social studies achievement differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for third grade social studies scores are (n = 1,023, M = 74.65, SD = 15.20, 95% Cl [73.72, 75.59]). Levels 1, 5, 6, and 9 had the highest achievement averages for achievement in social studies with varied levels of principal experience and tenure. Level 1 had the highest achievement with fewer years of experience and tenure than any of the other levels (see Table 33).

Table 33
Descriptive Statistics for Combined levels of Principal Experience and Levels of Principal Tenure Experience for Third Grade Social Studies CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	76.11	15.39	70.97	81.24
2	71	72.99	14.22	69.62	76.35
3	47	74.06	17.02	69.06	79.06
4	79	72.33	13.99	69.20	75.46
5	169	75.95	14.31	73.78	78.12
6	215	74.65	14.55	72.69	76.60
7	28	71.60	20.60	63.61	79.59
8	103	72.80	16.66	69.54	76.05
9	274	75.88	15.24	74.07	77.69
Total	1,023	74.65	15.20	73.72	75.59

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal tenure on third grade social studies scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal tenure on third grade social studies scores $F(8, 218.71) = 1.05$, $p = .40$, partial $\eta^2 = .01$.

The percentage of third grade students meeting or exceeding standards on all sections of the CRCT, as reported on the Georgia Education Scoreboard for Georgia elementary schools, were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way factorial analysis of variance was conducted to investigate whether the percentage of third grade students meeting or exceeding standards on all sections of the CRCT differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for all sections of the third grade CRCT are (n = 1,023, M = 64.00, SD = 17.72, 95% Cl [62.91, 65.07]). Levels 2, 4, 7, and 8 had the lowest achievement averages on all sections of the third grade CRCT. These levels also had varied levels of experience but had fewer than four years of tenure. Level 1 had the highest achievement score with principals with fewer years of experience and less tenure than any of the other levels (see Table 34).

Table 34
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Tenure for all Sections of the Third Grade CRCT

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	66.66	18.31	60.56	72.77
2	71	61.59	15.39	57.95	65.23
3	47	64.93	19.58	59.18	70.68
4	79	59.82	16.95	56.02	63.62
5	169	65.21	16.81	62.65	67.77
6	215	64.22	16.52	62.00	66.44
7	28	61.52	23.45	52.42	70.61
8	103	61.11	19.83	57.23	64.98
9	274	65.73	17.87	63.61	67.86
Total	1,023	64.00	17.72	62.91	65.07

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal tenure on all sections of the third grade CRCT. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal tenure on all sections of the third grade CRCT ($F(8, 218.74) = 1.64$, $p = .11$, partial $\eta^2 = .01$.

Georgia elementary fifth grade reading CRCT scores were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way factorial analysis of variance was conducted to investigate whether fifth grade reading achievement differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for fifth grade reading scores are (n = 1,023, M = 87.04, SD = 8.68, 95% Cl [86.51, 87.57]). Level 1 schools which had principals with the least experience and the least tenure had the highest achievement scores. Level 4 schools which had principals with moderate experience and the least tenure had the lowest achievement scores on the fifth grade reading CRCT (see Table 35).

Table 35
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Tenure for Fifth Grade Reading CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	87.96	7.97	85.30	90.61
2	71	87.55	8.36	85.69	89.53
3	47	87.93	10.10	84.96	90.90
4	79	85.92	7.12	84.33	87.52
5	169	87.64	7.92	86.44	88.84
6	215	86.17	8.55	85.02	87.32
7	28	87.07	9.14	83.53	90.62
8	103	86.29	9.30	84.47	88.11
9	274	87.54	9.26	86.44	88.64
Total	1,023	87.04	8.68	86.51	87.57

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal tenure on fifth grade reading scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of principal

experience and levels of principal tenure on fifth grade reading scores $F(8, 220.93) = 0.94$, $p = .48$, partial $\eta^2 = .01$.

Georgia fifth grade English/language arts CRCT scores were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way factorial analysis of variance was conducted to investigate whether fifth grade English/language arts achievement differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for fifth grade English/language arts scores are (n = 1,023, M = 90.84, SD = 6.46, 95% Cl [90.45, 91.24]). Level 3 schools with less experienced principals with higher tenure had the highest achievement scores on the English/language arts CRCT. Other schools scoring above the mean were level 1, 5, 7, and 9 schools with various experience and tenure levels for the principals. Level 8 schools with principals with moderate experience levels and two to three years of tenure performed the lowest on the fifth grade English/language arts CRCT (see Table 36).

Table 36
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Tenure for Fifth Grade English/Language Arts CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	91.11	6.19	89.04	93.17
2	71	90.80	6.00	89.38	92.22
3	47	92.12	6.67	90.16	94.08
4	79	89.91	5.96	88.58	91.25
5	169	91.62	5.72	90.75	92.49
6	215	90.40	6.33	89.54	91.25
7	28	90.89	6.76	88.27	93.51
8	103	89.73	7.10	88.35	91.12
9	274	91.15	6.90	90.33	91.97
Total	1,023	90.84	6.46	90.45	91.24

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal tenure on fifth grade English/language arts scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal tenure on fifth grade English/language arts scores $F(8, 220.78) = 1.33$, $p = .23$, partial $\eta^2 = .01$.

Fifth grade mathematics CRCT scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way factorial analysis of variance was conducted to investigate whether fifth grade mathematics achievement differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for fifth grade mathematics scores are (n = 1,023, M = 78.19, SD = 13.33, 95% Cl [77.37, 79.01]). Schools at levels 1, 3, 5 and 9 performed above the mean on the fifth grade mathematics CRCT. These schools had various principal experience and tenure levels as did the schools which performed below the mean on the CRCT (see Table 37).

Table 37
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Tenure for Fifth Grade Mathematics CRCT Scores

Levels	*N*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	79.06	15.09	74.02	84.09
2	71	76.16	13.76	72.91	79.42
3	47	79.36	14.56	75.08	83.63
4	79	74.15	14.33	70.94	77.36
5	169	79.77	12.56	77.86	81.68
6	215	77.82	12.62	76.12	79.51
7	28	77.57	15.39	71.60	83.54
8	103	76.55	14.10	73.79	79.30
9	274	79.57	12.71	78.05	81.08
Total	1,023	78.19	13.33	77.37	79.01

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal tenure on fifth grade mathematics scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal tenure on fifth grade mathematics scores $F(8, 217.72) = 1.92$, $p = .06$, partial $\eta^2 = .02$.

Fifth grade science CRCT scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way factorial analysis of variance was conducted to investigate whether fifth grade science achievement differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for fifth grade science scores are (n = 1,023, M = 74.27, SD = 16.07, 95% Cl [73.28, 75.25]). Schools at level 3 scored the highest on the fifth grade science CRCT. These schools housed principals with 14 years or less experience and four or more years of tenure. Level 4 schools, with principals with 15-24 experience and one year of tenure, scored the lowest on the fifth grade science CRCT (see Table 38).

Table 38
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Tenure for Fifth Grade Science CRCT Scores

Levels	*N*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	76.52	16.16	71.14	81.91
2	71	72.96	14.99	69.41	76.51
3	47	76.64	17.43	71.52	81.76
4	79	70.84	16.00	67.26	74.42
5	169	75.42	14.22	73.26	77.58
6	215	74.07	15.90	71.94	76.21
7	28	74.37	15.59	68.33	80.42
8	103	73.01	17.41	69.61	76.42
9	274	74.78	16.84	72.78	76.79
Total	1,023	74.27	16.07	73.28	75.25

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal tenure on fifth grade science scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of principal

experience and levels of principal tenure on fifth grade science scores $F(8, 220.47) = 0.94$, $p = .48$, partial $\eta^2 = .01$.

Fifth grade social studies CRCT scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way factorial analysis of variance was conducted to investigate whether fifth grade social studies achievement differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for fifth grade social studies scores are (n = 1,023, M = 69.47, SD = 17.44, 95% Cl [68.40, 70.54]). On the fifth grade social studies CRCT, level 3 schools with principals with 14 or less years experience and four or more years of tenure scored above the mean, while level 8 schools with principals with 25 or more years experience and two to three years tenure scored the lowest (see Table 39).

Table 39
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Tenure for Fifth Grade Social Studies CRCT Scores

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	69.95	17.15	64.23	75.67
2	71	69.09	15.03	65.54	72.65
3	47	71.44	19.48	65.72	77.16
4	79	67.69	17.22	63.83	71.54
5	169	70.20	16.07	67.76	72.65
6	215	69.51	17.54	67.15	71.87
7	28	69.48	17.41	62.73	76.23
8	103	67.05	18.30	63.47	70.63
9	274	70.10	18.25	67.93	72.27
Total	1,023	69.47	17.44	68.40	70.54

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal tenure on fifth grade social studies scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal tenure on fifth grade social studies scores ($F(8, 220.88) = 0.48$, $p = .87$, partial $\eta^2 = .004$.

The percentage of fifth grade students meeting or exceeding standards on all sections of the CRCT, as reported on the Georgia Education Scoreboard for Georgia elementary schools, were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way factorial analysis of variance was conducted to investigate whether the percentage of fifth grade students meeting or exceeding standards on all sections of the CRCT differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for all sections of the fifth grade CRCT are (n = 1,023, M = 62.60, SD = 21.68, 95% Cl [61.27, 63.93]). Level 7 schools with principals with 25 or more years experience and one year of tenure scored higher than other level schools on all sections of the fifth grade CRCT. Level 8 schools, which housed principals with 25 years or more experience and two to three years of tenure, scored lowest overall on the CRCT (see Table 40).

Table 40
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Tenure for all Sections of the Fifth Grade CRCT

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	63.35	20.21	56.60	70.09
2	71	60.34	16.64	56.40	64.28
3	47	65.13	21.04	58.95	71.31
4	79	57.83	18.42	53.71	61.96
5	169	63.38	17.53	60.72	66.05
6	215	62.80	18.47	60.32	65.28
7	28	74.37	67.27	48.28	100.45
8	103	59.74	20.30	55.77	63.71
9	274	63.25	19.42	60.94	65.56
Total	1,023	62.60	21.68	61.27	63.93

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal tenure on all sections of the fifth grade CRCT. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of

principal experience and levels of principal tenure on all sections of the fifth grade CRCT $F(8, 217.49) = 1.29$, $p = .25$, partial $\eta^2 = .02$.

Fifth grade writing scores for Georgia elementary schools were analyzed to determine if student achievement varied based on levels of principal experience and levels of principal tenure. A one-way factorial analysis of variance was conducted to investigate whether fifth grade writing achievement differed based on combined levels of principal experience and levels of principal tenure.

The descriptive statistics for combined levels of principal experience and levels of principal tenure for fifth grade writing scores are (n = 1,023, M = 76.57, SD = 13.27, 95% Cl [75.76, 77.38]). Level 3 schools scored the highest on the Fifth Grade Writing Assessment. These schools had principals with 14 or fewer years experience and four or more years of tenure. The lowest performing were level 4 schools with principals who had 15-24 years experience and two to three years of tenure (see Table 41).

Table 41
Descriptive Statistics for Combined Levels of Principal Experience and Levels of Principal Tenure for Grade 5 Writing Assessment

Levels	*n*	*M*	*SD*	95% Cl	
				LL	*UL*
1	37	77.39	13.60	72.85	81.92
2	71	77.40	11.23	74.74	80.06
3	47	80.71	12.31	77.09	84.32
4	79	71.50	14.83	68.15	74.84
5	169	77.81	12.37	75.93	79.69
6	215	75.76	12.93	74.02	77.50
7	28	78.29	14.10	72.82	83.75
8	103	75.67	14.60	72.81	78.52
9	274	77.02	13.29	75.44	78.60
Total	1,023	76.57	13.27	75.76	77.38

Note. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.
Level 1 (≤14 years experience and 1-2 principals), level 2 (≤14 years experience and 3 principals), level 3 (≤14 years experience and > 4 principals), level 4 (15-24 years experience and 1-2 principals), level 5 (15-24 years experience and 3 principals), level 6 (15-24 years experience and ≥ 4 principals), level 7 (≥25 years experience and 1-2 principals), level 8 (≥25 years experience and 3 principals), and level 9 (≥25 years experience and ≥ 4 principals).

A one-way ANOVA was conducted to determine if there was a significant difference between combined levels of principal experience and levels of principal tenure on fifth grade writing scores. The Welch's F test was used to compensate for unequal sample sizes. There was no significant difference between combined levels of principal

experience and levels of principal tenure on fifth grade writing scores $F(8, 220.05) = 2.26$, $p = .02$, partial $\eta^2 = .02$).

Research Question 4. Is there a significant difference in principal stability, principal tenure, and principal experience by school configuration (prekindergarten through fifth and third through fifth grade)?

Research question four was answered using a Mann-Whitney U Test. The Mann-Whitney U Test was conducted to determine if there was a significant difference between school configuration and principal experience, principal stability, and principal tenure. The Mann-Whitney U Test results were considered significant if $p < .05$.

The descriptive statistics for principal experience were $n = 1{,}071$, $Mdn = 23$, $M = 22.63$, $SD = 7.57$. The range of values for principal experience was one to 46 years. Descriptive statistics for schools with prekindergarten through fifth grade configuration were $n = 1{,}023$, $Mdn = 22$, $M = 22.58$, $SD = 7.54$, and the range of values for principal experience was 1 to 46 years. Descriptive statistics for schools with a third through fifth grade configuration were $n = 48$, $Mdn = 24$, $M = 23.56$, $SD = 8.06$, and the range of values for principal experience was six to 40 years.

Principal experience for Georgia elementary schools was analyzed using the Mann-Whitney U test to determine if there was a significant difference between school configuration and principal experience. Results from the Mann-Whitney U analysis did not yield a significant difference ($U = 22538.50$, $z = -0.96$, $p = .34$) on principal experience by school configuration. The effect size $r = 0.09$ was small indicating little practical importance.

The descriptive statistics for principal stability were n = 1,071, Mdn = 3, M = 2.83, SD = 1.39. The range of values for principal stability was one to seven principals in the ten-year period. Descriptive statistics for schools with prekindergarten through fifth grade configuration were n = 1,023, Mdn = 3, M = 2.81, SD = 1.19, and the range of values for principal stability was one to seven principals. Descriptive statistics for schools with a third through fifth grade configuration were n = 48, Mdn = 3, M = 3.21, SD = 3.61, and the range of values for principal stability was one to six principals.

Principal stability for Georgia elementary schools was analyzed using the Mann-Whitney U test to determine if there was a significant difference between school configuration and principal stability. Results from the Mann-Whitney U analysis did not yield a significant difference (U = 22260.50, z = -1.31, p = .26) on principal stability by school configuration. The effect size r = 0.13 was small, indicating little practical importance.

The descriptive statistics for principal tenure were n = 1,071, Mdn = 3, M = 3.55, SD = 3.12. The range of values for principal tenure was principals in year 1 to year 12 of service. Descriptive statistics for schools with prekindergarten through fifth grade configuration descriptive statistics were n = 1,023, Mdn = 3, M = 3.57, SD = 3.10, and the range of values for principal tenure was year 1 to year 12 of service. Descriptive statistics for schools with a third through fifth grade configuration descriptive statistics were n = 48, Mdn = 2, M = 2.60, SD = 1.32, and the range of values for principal tenure was year 1 to year 12 of service.

Principal tenure for Georgia elementary schools was analyzed using the Mann-Whitney U test to determine if there was a significant difference between school

configuration and principal tenure. Results from the Mann-Whitney U analysis did not yield a significant difference (U = 21233.00, z = -1.60, p = .11) on principal tenure by school configuration. The effect size r = 0.15 was small, indicating little practical importance.

Summary of Findings

Research question 1. Thirteen regression models were constructed and evaluated. All 13 analyses resulted in regression models which could be used to predict student achievement. The regression models indicated the combined predictor variables accounted for 51.3% of the variance in third grade reading, 47.8% of the variance in third grade English/language arts, 54.2% of the variance in the third grade mathematics, 59.7% of the variance in third grade science, 55.0% of the variance in the third grade social studies, 80.0% of the variance in the percentage of third grade students meeting or exceeding standards on all sections of the CRCT, 49.3% of the variance in fifth grade reading, 37.4% of the variance in fifth grade English/language arts, 43.3% of the variance in fifth grade mathematics, 53.2% of the variance in fifth grade science, 56.8% of the variance in the fifth grade social studies, 61.8% of the variance in the percentage of fifth grade students meeting or exceeding standards on all sections of the CRCT, and 40.6% of the variance in the Grade 5 Writing Assessment.

Examination of each model revealed variables related to school principals did not make significant contributions to twelve of the thirteen models; the only exception was to fifth grade mathematics. Variables related to students did make significant contributions to each regression model, the percentage of economically disadvantaged students made a significant contribution to all thirteen models. The percentage of minority students made

significant contribution to twelve of the thirteen models; the only exception was to Grade 5 writing.

Research question 2. A one-way analysis of variance was used to determine if there was a significant difference between student achievement means on the combined levels of principal experience and levels of principal stability. The study showed there was no significant difference between the combination of levels of principal experience and levels of principal stability on the 13 independent variables examined relating to student achievement.

Research question 3. A one-way analysis of variance was used to determine if there was a significant difference between student achievement means on the combined levels of principal experience and levels of principal tenure. The study showed there was no significant difference between the combination of levels of principal experience and levels of principal tenure on the 13 independent variables examined relating to student achievement.

Research Question 4. Is there a significant difference in principal stability, principal tenure, and principal experience by school configuration (prekindergarten through fifth and third through fifth grade)? The study showed no evidence that a significant difference existed between principal stability, principal tenure, and principal experience and school configuration.

Chapter V

SUMMARY AND DISCUSSION

This chapter presents an overview of the study, a summary of the findings, the conclusions drawn, and suggested implications for future research. In addition to the overview, the first section includes a review of the purpose of the study, the data collection procedures, and the methods for analyzing the data. The next section includes a review of the findings from the data analysis followed by a discussion of each research question and their respective conclusion. Finally, the last sections address the practical implications of the research findings as well as recommendations for future research.

Overview of the Study

Research from across the nation has revealed a decline in the number of administrators in the field of education (Hoachlander, Alt, & Beltranena, 2001). In Georgia, the need for principals has increased as well, due to record numbers of principals retiring and resigning (Davis et al., 2005). Educators do not want to fill these administrative positions because of the demands of accountability, leadership, and statewide curriculum (Davis et al.). Therefore, it is important to fully understand the role a principal plays in the success of a school. Is the principal a primary factor in student success and more highly accountable for such? The purpose of this study was to determine if the characteristics of either the school principal or the school's student population predict student achievement. Do factors such as principal stability, principal tenure, and principal experience of an elementary school principal make a significant

difference in student achievement of third and fifth grade students on the third and fifth grade CRCT and the Grade 5 Writing Assessment, and is there a significant difference in the principal's tenure (length of service at current school), experience (total years of educational service), and principal stability (number of principals at the school during the ten-year period of the study) by school configuration?

For this study, principal tenure was defined as the total number of years the 2008/2009 principals had been in their current position. Principal stability was determined by calculating the average number of principals per school over a ten-year period from July 1, 1999, through June 30, 2009. Principal experience was defined as the total number of years in public education as a certified educator.

Achievement data included the percentage of third and fifth grade students who met or exceeded standards on the reading, English/language arts, mathematics, science, and social studies sections of the CRCT. Additional achievement measures included the percentage of fifth grade students meeting or exceeding standards on the Grade 5 Writing Assessment along with the percentage of students from each school meeting or exceeding standards on all sections of the CRCT reported in the Georgia Education Scoreboard (GOSA, 2009). The independent variables in the investigation were principal experience, principal tenure, principal stability, principal race or ethnicity, and principal gender. The independent variables relating to students were the percentage of economically disadvantaged students, the percentage of students identified with a disability, and the percentage of minority students.

This study was guided by the following research questions.

Research question 1. Does principal tenure, principal stability, principal experience, principal gender, principal race or ethnicity, percentage of minority students, percentage of economically disadvantaged students, or percentage of students identified with a disability predict student achievement as measured by Georgia's third and fifth grade CRCT scores, fifth grade writing scores, and the school index score obtained from the Georgia Education Scoreboard?

Research Question 2. Is there a significant difference between levels of principal stability and levels of principal experience on student achievement in Georgia's elementary schools as measured by Georgia's third and fifth grade CRCT scores, fifth grade writing scores, and school index score obtained from the Georgia Education Scoreboard?

Research Question 3. Is there a significant difference between levels of principal tenure and levels of principal experience on student achievement in Georgia's elementary schools as measured by Georgia's third and fifth grade CRCT scores, fifth grade writing scores, and school index score obtained from the Georgia Education Scoreboard?

Research Question 4. Is there a significant difference in principal stability, principal tenure, and principal experience by school configuration (prekindergarten through fifth and third through fifth grade)?

Related Literature

The duties and responsibilities of a principal are abundant, change daily, and range from mentor to reformist and all things in between (Hopkins, 2007). The job of a principal is multifaceted, and its complexity continues to increase with the changing economy, communities, cultures, and new legislation (Gamage et al., 2009). Portin et al.

(2006) noted national and state testing has changed the roles and responsibilities of school principals.

According to Kingston (2005), improving student achievement is the major responsibility of school leaders due to the increased accountability for students and schools. This increased level of responsibility and accountability has created a need for school administrators to be trained to interpret the data gathered from assessments in order to direct the progress of the school as instructional leaders (Hoachlander et al., 2001). As states, local school districts, and schools continue to focus on reform, various researchers have indicated that, for improvement to occur, it must be focused at the school level, thus rendering the principal a very influential stakeholder (Fullan, 2003; McNeal & Christy, 2001; Snowden & Gorton, 2002). They also indicated that principals are charged with leading effective school improvement initiatives, and it is crucial they possess the knowledge and leadership skills necessary for such pursuits. Furthermore, as principals are charged with leading school improvement, it is necessary for state educational leaders to know the knowledge, skills, and practices demonstrated by the state's principals, in both high and low-performing schools, so the necessary technical assistance and professional development may be provided to aid them in their school improvement initiatives.

The demand for principals to improve student achievement has received legislative leaders' attention, and principals in all grade levels have the responsibility of improving student achievement or must face the consequences (Viadero, 2009). States such as California and Oregon have enacted legislation that would result in the firing of principals or substantially reducing their salaries if their schools and students fail to make

adequate yearly progress (Davis et al., 2005). Research done by Gates et al. (2003) found the national effort to hold principals accountable for student performance has allowed school districts to remove those principals who fail to make or sustain student gains on achievement tests. As a result, principals strive to improve instruction and student achievement and find ways to initiate reform within their schools (Fullan, 2008). School systems are grasping for ways to meet the challenge of improving the level of student achievement and meeting the demand for greater accountability (Waters & Cameron, 2007).

Hall and Hord (2006) described school reform and change as a progression, not a single occurrence, and said that the complexity of school reform and change can create failure unless there is willingness of all stakeholders to accept responsibility for the reform and change process. According to Fullan (2002), principals are the factor for maintaining reform and creating effective schools. Sergiovanni and Starratt (2006) found that reforms would be insignificant if the appropriate environment and climate were not in place first. Therefore, maintaining a safe and secure learning environment has become another major responsibility for school principals (Marzano, 2003).

When educational reform and change is needed within a school, the climate established by the school principal has a direct effect on determining the success of the desired change (McCray et al., 2004). Hoyle et al. (1985) concluded school climate may be one of the most important elements of a thriving instructional program. As reported by Grubbs et al. (2002), a school climate conducive for student success was indicative of having a strong instructional leader in place. Student achievement is often the result of

the success of the local principal's ability to create a learning environment where successful teaching and learning can occur (Gamage et al., 2009).

One of the problems facing schools, according to Fuller and Young (2009), is that principals are not staying at schools long enough to guide reform and change initiatives. In order for schools to sustain quality improvement, it is critical to minimize principal turnover and retain principals for at least five years (Fullan, 1991). For authentic organizational reform and change to occur it takes more than changes in the school's structure and practices; an organizational change takes buy-in from all the stakeholders and a willingness to support the desired outcomes (Sears, 2006). An effective principal is responsible for creating a climate conducive to learning, promoting teacher efficacy and professional growth, developing community support, and setting high expectations for student achievement (Azzara, 2000; Day, 2000; Riehl, 2000).

Methods

The ex post facto design was utilized in this study to examine the 2008-2009 student achievement data in 1,023 Georgia elementary schools, and the 2008-2009 demographics on 1,023 Georgia elementary school principals. Data pertaining to the nine independent variables and the 13 dependent variables involving the 1,023 Georgia elementary schools included in the study were entered into SPSS (originally Statistical Package for the Social Sciences) and analyzed using multivariate statistical methods including multiple regression analysis, one-way analysis of variance and the Mann-Whitney U Test.

Participants

This study included 1,023 Georgia elementary school principals. In 2009, 72.6% of the Georgia elementary schools principals were female and 64.5% of the Georgia elementary school principals were white. The mean tenure of Georgia elementary school principals over a ten-year period was 3.56 years and the mean stability was 2.08 years. CPI reports revealed the mean experience for the 2009 Georgia elementary schools principals to be 22.58 years.

Variables examined

The independent variables for this study included principal experience, principal stability, principal tenure, principal race or ethnicity, principal gender, percentage of minority students, percentage of economically disadvantaged students, and percentage of students identified with a disability. The dependent variables included the percentage of third and fifth grade students meeting or exceeding standards on the reading, English/language arts, mathematics, science, and social studies sections of the CRCT, the school index score based on the percentage of third grade students meeting or exceeding standards on all sections of the CRCT, and the percentage of fifth-grade students meeting or exceeding standards on the Grade 5 Writing Assessment.

Procedures

After receiving committee approval and a waiver from Valdosta State University's Institutional Review Board (IRB) ~~and waiver~~ (see Appendix B), a letter was submitted to the Georgia Professional Standards Commission requesting data pertaining to 2008-2009 Georgia elementary school principal tenure, principal experience, principal stability, principal gender, and principal race or ethnicity (GaPSC, 2010) (see Appendix

A). Student achievement data for the study were publicly available from the Governor's Office of Student Achievement. The percentages of third and fifth-grade students meeting or exceeding standards on the reading, English/language arts, mathematics, science and social studies sections of the CRCT, the percentage of third and fifth-grade students meeting or exceeding standards on all sections of the CRCT as reported on the Georgia Education Scoreboard, and the percentage of students meeting or exceeding standards on the Grade 5 Writing Assessment were collected and entered into SPSS 9 and analyzed using multiple regression analysis, one-way ANOVA, and the Mann-Whitney U Test.

Summary of Findings

Research question 1. Research question one investigated the predictive value between principal tenure, principal stability, principal experience, percentage of minority students, percentage of economically disadvantaged students, and percentage of students identified with a disability on measures of school achievement in Georgia elementary schools for third and fifth grades. Thirteen standard multiple regression analyses were conducted to determine if the independent variables could be used to predict third and fifth grade student achievement. All 13 analyses resulted in regression models which could be used to predict student achievement (see Table 42). However, although each model could be used to predict student achievement, findings showed principal tenure, principal stability, principal experience, principal gender, and principal race or ethnicity did not make significant contributions to any of the regression models. Variables pertaining to the percentage of economically disadvantaged students made a significant contribution to all thirteen regression models. The variable for percentage of minority

students made significant contributions to 12 of the 13 regression models. The only exception was to the percentage of fifth grade students meeting or exceeding standards on the Grade 5 Writing Assessment.

Table 42
Regression Model Summary for Third and Fifth Grade Student Achievement

Student Achievement	R	R^2	Adj R^2	ANOVA
Third Grade Reading	.72	.51	.51	$F(8, 1014) = 133.56$, $p < .001$
Third Grade ELA	.69	.48	.47	$F(8, 1014) = 116.02$, $p < .001$
Third Grade Mathematics	.74	.54	.54	$F(8, 1014) = 150.07$, $p < .001$
Third Grade Science	.77	.60	.59	$F(8, 1014) = 188.08$, $p < .001$
Third Grade Social Studies	.74	.55	.55	$F(8, 1014) = 155.10$, $p < .001$
Third Grade GES	.80	.64	.64	$F(8, 1014) = 226.03$, $p < .001$
Fifth Grade Reading	.70	.49	.49	$F(8, 1014) = 123.07$, $p < .001$
Fifth Grade ELA	.61	.37	.37	$F(8, 1014) = 75.77$, $p < .001$
Fifth Grade Mathematics	.66	.43	.43	$F(8, 1014) = 96.98$, $p < .001$
Fifth Grade Science	.76	.53	.53	$F(8, 1014) = 144.23$, $p < .001$
Fifth Grade Social Studies	.75	.57	.57	$F(8, 1014) = 166.93$, $p < .001$
Fifth Grade GES	.79	.62	.62	$F(8, 1014) = 204.90$, $P < .001$
Fifth Grade Writing	.64	.41	.40	$F(8, 1013) = 86.70$, $p < .001$

* $p < .001$

Research question 2. For research question two, a one-way analysis of variance was used to determine if there was a significant difference between student achievement means and

the combined levels of principal experience and levels of principal stability. The analysis revealed that there was no significant difference between the combination of levels of principal experience and levels of principal stability on the 13 student achievement variables.

Research question 3. For research question three, a one-way analysis of variance was used to determine if there was a significant difference between student achievement means and the combined levels of principal experience and levels of principal tenure. The study did not reveal any significant differences between the combination of levels of principal experience and principal tenure on the 13 student achievement variables.

Research question 4. Research question four examined if there was a significant difference in principal stability, principal tenure, and principal experience by school configuration (prekindergarten through fifth and third through fifth grade)? The Mann-Whitney U Test was conducted to determine if any significant differences existed between principal stability, principal tenure, and principal experience and the independent variable school configuration. There were no significant differences found.

~~*Discussion of Findings*~~

Discussion of Findings

Principal stability, principal tenure, principal experience, principal gender, and principal race or ethnicity were examined in the context of student achievement. Findings are presented as the predictive impact of principal stability, principal tenure, principal experience, principal gender, and principal race or ethnicity. Principal factors are also discussed in predictive relation to the percentage of economically disadvantaged students, the percentage of minority students, and the percentage of students identified with a

disability. Results of the current study indicate independent variables of principal tenure, principal experience, principal stability, principal gender, and principal race or ethnicity did not significantly impact the 2009 student achievement in Georgia elementary schools. This study supports the findings of Howard (2008) on school superintendents, Siegrist et al. (2009) on high school principals and Huff, Brockmeier, Leech, Martin, Pate, and Siegrist (2011) on middle school principals.

It should be noted most Georgia elementary schools were characterized by low levels of principal tenure and low levels of principal stability in 2009. The mean tenure, or the number of years the 2009 principal was in the current position, was 3.56 years. Of the 1,023 principals in the study, 68.0% had less than five years of tenure. According to Fullan (2001) when almost three in four principals have less tenure than what research has shown is necessary for implementing significant change, true change never has the opportunity to come to fruition, because each new principal seldom continues to implement the current change initiative. Based on the results of this study a principal's tenure was not found to have a significant predictive impact on student achievement.

Principal stability was determined by calculating the average number of principals per school from July 1, 1999, through June 30, 2009. Research on organizational change suggests keeping principal turnover low and retaining principals as critical to quality school improvement (Hall & Hord, 2006; Fuller & Young, 2009). A significant percentage of Georgia elementary schools were led by a large number of different principals over the past ten years. Of the 1,023 principals in the study, 56.4% of schools had been led by three or more principals during the ten-year period of the study. The mean stability of the Georgia elementary schools in the study was 2.81 principals per

school. The average years of experience of the 1,023 elementary principals in this study was 22.58 years. Research has demonstrated principals have an effect on student achievement (Leithwood et. al., 2004; Waters et al., 2003). When principals are strong instructional leaders improving instruction and initiating reform students make greater academic gains (Fullan, 2008). Because principal influence on student achievement is primarily indirect, the impact is not immediate and requires substantial time to lead successful school improvement (Davis et al., 2005). In order for schools to sustain quality improvement, it is critical to minimize principal turnover and retain principals for at least five years (Fullan, 2001).

The primary purpose of this study was to determine if a principal's tenure, experience, and stability predicted student achievement, and the study found they were not predictors for the 2009 student achievement in Georgia elementary schools. However, a secondary finding of the study showed the percentage of economically disadvantaged students and the percentage of minority students were stronger predictors of student success than were variables related to school principals. The percentage of economically disadvantaged students impacted all 13 dependent achievement variables, and the percentage of minority students impacted 12 of the 13 student dependent achievement variables. A student's socioeconomic status has consistently been found to be the primary indicator of student achievement (Siegrest et al., 2009; Sirin, 2005). The findings of these and other studies present a significant challenge to schools as they strive to find ways to improve students' achievement in spite of students' socioeconomic and racial barriers. The findings of this study indicated that the student demographics, percentage of economically disadvantaged students and percentage of minority students had a greater

predictive value than principal experience, principal stability, and principal tenure on student achievement.

According to Coleman et al. (1966), a student's background contributes to a student's ability to achieve more than any other variable within a school. Local schools are held accountable for the achievement of all students (No Child Left Behind [NCLB], 2002). Although some of the work necessary to reduce the achievement gap is outside the control of local schools Green, Viadero (2000), and Viadero and Johnston (2000) propose that there are several successful strategies schools can employ to raise achievement for all students. They suggest that through teacher consciousness and communication of high expectations for all students, cultural congruence in instruction, meaningful class participation, smaller class size, higher teacher quality, and summer enrichment programs schools can help close the achievement gap. Haycock (2001) purports that in order to increase achievement of all students schools should implement clear standards for learning and a challenging curriculum, increase instructional time, and hire teachers with proven track records of success.

Findings of the current study revealed that schools with high percentages of economically disadvantaged students had low levels of principal stability, $R(1021) = .12$, $p < .01$. Results also showed these schools were more often led by principals with less experience in education, $R(1021) = .01$, $p < .01$. This study also revealed schools with high percentages of students identified with disabilities had low levels of principal stability, $R(1021) = .12$, $p < .01$, and schools with high percentages of minority students were more often led by principals with less experience in education, $R(1021) = -.01$ $p < .01$. This finding support those of Papa, Lankford, Hamilton, and Wyckoff (2002), who

found low performing schools are more likely to be led by principals with the least amount of experience. According to Fuller and Young (2008), student achievement will influence the retention rates of principals especially during their first year of employment, and low achieving schools will have principals with the shortest tenure and lowest retention rates. They also concluded that the percentage of economically disadvantaged students within a school may have an undeniable effect on principal tenure and retention rates, and principal retention is lower for schools having a higher poverty rate than for schools with a higher socioeconomic rate. These findings may suggest that for schools with a high percentage of economically disadvantaged students and a high percentage of minority students sustaining quality and experienced principals is critical in order to implement needed school reform initiatives and improve student achievement. As indicated by the Southern Regional Education Board (2002), all schools need effective principals. Effective principals must be strong and experienced and build their work on the central issues of learning, teaching, and continuous school improvement (Schmoker, 1999). Effective principals create a school culture centered on student achievement (Fullan, 2001; Sergiovanni, 2001).

Schools systems are charged with the recruiting, hiring, and retaining highly qualified school leaders (Knapp, Copland, & Talbert, 2003). Those individuals who are seeking principal positions or who are currently holding those positions many times lack the proper preparation and support needed to successfully meet the demands of the job (Levine, 2005; Young, 2002). Therefore, universities must revamp their certification programs so principals are prepared for and understand the responsibilities of the job (Hoffman, 2004). The State of Georgia has been proactive in establishing Georgia's

Leadership Institute for School Improvement (GLISI) in an effort to train, recruit, and retain capable leaders (Davis et al., 2005). When principals are properly prepared to lead schools through a reform initiative they are more likely to be retained in those positions (Davis et al., 2005).

Limitations of the Study

According to Cline and Clark (2000), the limitations of a study are the attributes of the methodology which place restrictions on the interpretation of the study's results. This study assessed schools with varying demographics, teachers, cultures, and leadership styles. These characteristics may limit the generalizability of the study to other states. Additionally, this study was delimited to elementary schools with grade levels prekindergarten through fifth grade. Many elementary schools in Georgia are not comprised exclusively of prekindergarten through fifth grade. The omission of 293 schools from the primary focus of the study could have altered the results. However, greatest methodological limitation to the study was using a single year of achievement data as the measure of student achievement.

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The design of this study was to determine if a significant difference existed between student achievement and principal stability, principal tenure, and principal experience; however, this study was limited in that no consideration was given to the effectiveness or ineffectiveness of school leadership styles in Georgia elementary schools.

In this study, academic performance was assessed using the reading, English/language arts, mathematics, science, and social studies scores of third and fifth grade students on the CRCT and the Grade 5 Writing Assessment from students in

elementary schools consisting of prekindergarten through grade five. Georgia's Single Statewide Accountability System (SSAS) has chosen to use the CRCT for determining school and student success. Therefore, the study is also limited by the ability of these assessments to measure student achievement.

The findings of this study are also limited because principal effectiveness was not investigated. Principal experience includes all years of educational experience, not just the years as a principal. Experience also includes skills gained which prepare principals to successfully lead schools, and these types of experiences were not measured.

An additional limitation of this study is the lack of inclusion of variables related to teacher effectiveness. Teachers, through daily contact with students, have the greatest influence on student achievement (Wright, Horn, & Sanders, 1997).

Future Research

Research results on the relationships between principal tenure, principal experience, and principal stability while inconclusive do indicate principal experience and principal stability have some impact on student achievement (Fuller & Young,2008; Schmoker, 1999). Future research is likely to continue to focus on the school principal as the change agent in schools. This study, along with the studies of Howard (2008), Huff (2009), and Siegrest et al. (2009) could be replicated to focus on the influence of superintendent, principal, and teacher tenure on student achievement. Additionally, a study could be conducted on universities which have graduate level leadership programs to assess principal effectiveness, principal tenure, and principal stability of their graduates who obtain principal positions in school systems.

Future research should also expand the study to investigate student achievement, principal tenure, principal stability, and principal experience over time. Longitudinal data collected over several years would strengthen the generalizability of research results. Statewide data on student test scores which link students from year to year and to individual schools and classrooms could be collected (Hamilton, 2002). All of these data sources could be tapped to create a system capable of supporting a richer analysis of school administrators.

It is likely principal tenure was not found to be a contributing variable in this study because most principals had less than five years of tenure in their current positions. Future research may be improved by examining principals with more than five years of tenure from the study.

Conclusions

During the next several years, local school systems will be faced with the overwhelming task of recruiting and retaining highly qualified and effective school leaders. Once school leaders are hired, these systems will need to find ways to promote individual growth and support to bring about needed reform initiatives. As demonstrated by the current study, many school systems have struggled to make this a reality. In order for local schools to meet the rigorous goals mandated by NCLB, their ability to hire qualified applicants and to retain highly effective principals is critical.

This study viewed principal tenure as the total number of years the 2009 principals had served in their current positions as principal. Principal tenure and principal stability were found not to have influenced any of the measures of student achievement because most principals' length of service at one school had not been long enough to

significantly impact school improvement efforts. Therefore, it may be implied that it is important for principals during their length of service at a school to develop a culture of high expectations that will endure over time and result in improved student achievement.

Regrettably, schools with the greatest barriers to student achievement were more often led by principals with the least experience. If schools are to overcome the effects of poverty and racial disparity, they must identify and retain school leaders who are prepared to lead school reform. There must be a joint effort made by both local school systems and universities to share in the responsibility of providing proper training and support to school leaders in order to improve schools and student achievement.

~~Principal stability, principal tenure, principal experience, principal gender, and principal race or ethnicity were examined in the context of student achievement. Findings are presented as the predictive impact of principal stability, principal tenure, principal experience, principal gender, and principal race or ethnicity. Principal factors are also discussed in predictive relation to the percentage of economically disadvantaged students, the percentage of minority students, and the percentage of students identified with a disability. Results of the current study indicate independent variables of principal tenure, principal experience, principal stability, principal gender, and principal race or ethnicity did not significantly impact the 2009 student achievement in Georgia elementary schools. This study supports the findings of Howard (2008) on school superintendents, Siegrist et al. (2009) on high school principals and Huff, Brockmeier, Leech, Martin, Pate, and Siegrist (2011) on middle school principals.~~

~~It should be noted most Georgia elementary schools were characterized by low levels of principal tenure and low levels of principal stability in 2009. The mean tenure, or the~~

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number of years the 2009 principal was in the current position, was 3.56 years. Of the 1,023 principals in the study, 68.0% had less than five years of tenure. According to Fullan (2001) when almost three in four principals have less tenure than what research has shown is necessary for implementing significant change, true change never has the opportunity to come to fruition, because each new principal seldom continues to implement the current change initiative. Based on the results of this study a principal's tenure was not found to have a significant predictive impact on student achievement. Principal stability was determined by calculating the average number of principals per school from July 1, 1999, through June 30, 2009. Research on organizational change suggests keeping principal turnover low and retaining principals as critical to quality school improvement (Hall & Hord, 2006; Fuller & Young, 2009). A significant percentage of Georgia elementary schools were led by a large number of different principals over the past ten years. Of the 1,023 principals in the study, 56.4% of schools had been led by three or more principals during the ten-year period of the study. The mean stability of the Georgia elementary schools in the study was 2.81 principals per school. The average years of experience of the 1,023 elementary principals in this study was 22.58 years. Research has demonstrated principals have an effect on student achievement (Leithwood et. al., 2004; Waters et al., 2003). When principals are strong instructional leaders improving instruction and initiating reform students make greater academic gains (Fullan, 2008). Because principal influence on student achievement is primarily indirect, the impact is not immediate and requires substantial time to lead successful school improvement (Davis et al., 2005). In order for schools to sustain quality

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improvement, it is critical to minimize principal turnover and retain principals for at least five years (Fullan, 2001).

The primary purpose of this study was to determine if a principal's tenure, experience, and stability predicted student achievement, and the study found they were not predictors for the 2009 student achievement in Georgia elementary schools. However, a secondary finding of the study showed the percentage of economically disadvantaged students and the percentage of minority students were stronger predictors of student success than were variables related to school principals. The percentage of economically disadvantaged students impacted all 13 dependent achievement variables, and the percentage of minority students impacted 12 of the 13 student dependent achievement variables. A student's socioeconomic status has consistently been found to be the primary indicator of student achievement (Siegrest et al., 2009; Sirin, 2005). The findings of these and other studies present a significant challenge to schools as they strive to find ways to improve students' achievement in spite of students' socioeconomic and racial barriers. The findings of this study indicated that the student demographics, percentage of economically disadvantaged students and percentage of minority students had a greater predictive value than principal experience, principal stability, and principal tenure on student achievement. According to Coleman et al. (1966), a student's background contributes to a student's ability to achieve more than any other variable within a school.

Local schools are held accountable for all students, even low socioeconomic students. Some of the work necessary to reduce the achievement gap is outside the control of local schools (NCLB, 2002). However, according to Green (2001), Viadero (2000), and Viadero and Johnson (2000), there are some things that schools can do, and are doing, to

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raise achievement for all students and which has been found to be successful. School efforts should be guided by research to help narrow the achievement gap Green (2001). Viadero (2000), and Viadero and Johnston (2000) also suggested the following: teacher consciousness and communication of high expectations for all students, cultural congruence in instruction, teaching strategies that promote meaningful participation, smaller class size, higher teacher quality and summer enrichment programs. Haycock (2001) purported the need for the following to be implemented if the educational community is going to make any headway towards closing the achievement gap: clear standards for learning, a challenging curriculum, more time and more instruction, and teachers with a proven track record of success.

Findings of the current study showed that schools with high percentages of economically disadvantaged students had low levels of principal stability, $R(1021) = .12$, $p < .01$. Results also showed these schools were more often led by principals with less experience in education, $R(1021) = .01$, $p < .01$. This study also revealed schools with high percentages of students identified with disabilities had low levels of principal stability, $R(1021) = .12$, $p < .01$, and schools with high percentages of minority students were more often led by principals with less experience in education, $R(1021) = -.01$ $p < .01$. According to Papa, Lankford, Hamilton, and Wyckoff (2002), low performing schools are more likely to be led by principals with the least amount of experience. The findings from this study may suggest that for schools with a high percentage of economically disadvantaged students and a high percentage of minority students sustaining quality and experienced principals is critical in order to implement needed school reform initiatives and improve student achievement. According to Fuller and

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~~Young (2008), student achievement will influence the retention rates of principals especially during their first year of employment, and low achieving schools will have principals with the shortest tenure and lowest retention rates. They also concluded that the percentage of economically disadvantaged students within a school may have an undeniable effect on principal tenure and retention rates, and principal retention is lower for schools having a higher poverty rate than for schools with a higher socioeconomic rate. As indicated by the Southern Regional Education Board (2002), all schools need effective principals. Effective principals must be strong and experienced and build their work on the central issues of learning, teaching, and continuous school improvement (Schmoker, 1999). Effective school principals create a school culture centered on student achievement (Fullan, 2001; Sergiovanni, 2001).~~

~~The analysis of this study indicated there were no significant differences between the combination of levels of principal experience and levels of principal stability on Georgia's third and fifth grade student achievement. This study also indicated there were no significant differences between the combination of levels of principal experience and levels of principal tenure on Georgia's third and fifth grade student achievement. This study also revealed there was no evidence to support that a school's configuration made a significant difference on a principal's experience, stability, or tenure.~~

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~~Schools systems are charged with the recruiting, hiring, and retaining highly qualified school leaders (Knapp, Copland, & Talbert, 2003). Those individuals who are seeking principal positions or who are currently holding those positions many times lack the proper preparation and support needed to successfully meet the demands of the job (Levine, 2005; Young, 2002). Therefore, universities must revamp their certification~~

programs so principals are prepared for and understand the responsibilities of the job (Hoffman, 2004). The State of Georgia has been proactive in establishing Georgia's Leadership Institute for School Improvement (GLISI) in an effort to train, recruit, and retain capable leaders (Davis et al., 2005). When principals are properly prepared to lead schools through a reform initiative they are more likely to be retained in those positions (Davis et al., 2005).

Limitations of the Study

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According to Cline and Clark (2000), the limitations of a study are the attributes of the methodology which place restrictions on the interpretation of the study's results. This study assessed schools with varying demographics, teachers, cultures, and leadership styles. These characteristics may limit the generalizability of the study to other states. Additionally, this study was delimited to elementary schools with grade levels prekindergarten through fifth grade. Many elementary schools in Georgia are not comprised exclusively of prekindergarten through fifth grade. The omission of 293 schools from the primary focus of the study could have altered the results. However, greatest methodological limitation to the study was using a single year of achievement data as the measure of student achievement.

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The design of this study was to determine if a significant difference existed between student achievement and principal stability, principal tenure, and principal experience; however, this study was limited in that no consideration was given to the effectiveness or ineffectiveness of school leadership styles in Georgia elementary schools.

In this study, academic performance was assessed using the reading, English/language arts, mathematics, science, and social studies scores of third and fifth grade students on the CRCT and the Grade 5 Writing Assessment from students in elementary schools consisting of prekindergarten through grade five. Georgia's Single Statewide Accountability System (SSAS) has chosen to use the CRCT for determining school and student success. Therefore, the study is also limited by the ability of these assessments to measure student achievement.

The findings of this study are also limited because principal effectiveness was not investigated. Principal experience includes all years of educational experience, not just the years as a principal. Experience also includes skills gained which prepare principals to successfully lead schools, and these types of experiences were not measured.

An additional limitation of this study is the lack of inclusion of variables related to teacher effectiveness. Teachers, through daily contact with students, have the greatest influence on student achievement (Wright, Horn, & Sanders, 1997).

Future Research

Research results on the relationships between principal tenure, principal experience, and principal stability while inconclusive do indicate principal experience and principal stability have some impact on student achievement (Fuller & Young,2008; Schmoker, 1999). Future research is likely to continue to focus on the school principal as the change agent in schools. This study, along with the studies of Howard (2008), Huff (2009), and Siegrest et al. (2009) could be replicated to focus on the influence of superintendent,

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principal, and teacher tenure on student achievement. Additionally, a study could be conducted on universities which have graduate level leadership programs to assess principal effectiveness, principal tenure, and principal stability of their graduates who obtain principal positions in school systems.

Future research should also expand the study to investigate student achievement, principal tenure, principal stability, and principal experience over time. Longitudinal data collected over several years would strengthen the generalizability of research results. Statewide data on student test scores which link students from year to year and to individual schools and classrooms could be collected (Hamilton, 2002). All of these data sources could be tapped to create a system capable of supporting a richer analysis of school administrators.

It is likely principal tenure was not found to be a contributing variable in this study because most principals had less than five years of tenure in their current positions. Future research may be improved by examining principals with more than five years of tenure from the study.

Conclusions

During the next several years, local school systems will be faced with the overwhelming task of recruiting and retaining highly qualified and effective school leaders. Once school leaders are hired, these systems will need to find ways to promote individual growth and support to bring about needed reform initiatives. As indicated by the current study, many school systems have struggled to make this a reality. In order for local schools to meet the rigorous goals mandated by No Child Left Behind (NCLB) Act of 2001, Pub. L. No.

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~~107-110, § 115, Stat. 1425 (2002), their ability to hire qualified applicants and to retain highly effective principals is critical.~~

~~This study viewed principal tenure as the total number of years the 2009 principals had served in their current positions as principal. Principal tenure and principal stability were found not to have influenced any of the measures of student achievement because most principals' length of service at one school had not been long enough to significantly impact school improvement efforts. Therefore, it may be implied that it is important for a principal during their length of service at a school to develop a deep culture that will permeate over time to improve student achievement.~~

~~Regrettably, schools with the greatest barriers to student achievement were more often led by principals with the least experience. If schools are to overcome the effects of poverty and racial disparity, they must identify and retain school leaders who are prepared to lead school reform. There must be a joint effort made by both local school systems and universities to share in the responsibility of providing proper training and support to school leaders in order to improve schools and student achievement.~~

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